TOSHIBA

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REVISION 2

SERVICE MANUAL

Projection Television

46H84
51H84
57H84
46H84C
51H84C
57H84C
57H84R

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CHAPTER 1 GENERAL ADJUSTMENTS

SAFETY INSTRUCTIONS

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" INSTRUCTIONS BELOW.

X-RAY RADIATION PRECAUTION

1. Excessive high voltage can produce potentially hazardous X-RAY RADIATION. To avoid such hazards, the high voltage must not be above the specified limit. The nominal value of the high voltage of this receiver is (A) kV at zero beam current (minimum brightness) under a 120V AC power source. The high voltage must not, under any circumstances, exceed (B) kV.

   Refer to table-1 for high voltage (A), (B).
   (See SETTING & ADJUSTING DATA on page 20)

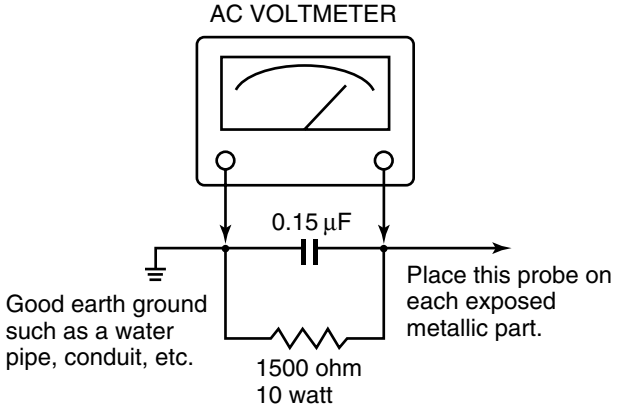
   Each time a receiver requires servicing, the high voltage should be checked following the HIGH VOLTAGE CHECK procedure in this manual. It is recommended that the reading of the high voltage be recorded as a part of the service record. It is important to use an accurate and reliable high voltage meter.
2. This receiver is equipped with a Fail Safe (FS) circuit which prevents the receiver from producing an excessively high voltage even if the B+ voltage increases abnormally. Each time the receiver is serviced, the FS circuit must be checked to determine that the circuit is properly functioning, following the FS CIRCUIT CHECK procedure in this manual.
3. The only source of X-RAY RADIATION in this TV receiver is the picture tube. For continued X-RAY RADIATION protection, the replacement tube must be exactly the same type tube as specified in the parts list.
4. Some part in this receiver have special safety-related characteristics for X-RAY RADIATION protection. For continued safety, parts replacement should be undertaken only after referring to the PRODUCT SAFETY NOTICE below.

SAFETY PRECAUTION

WARNING : Service should not be attempted by anyone unfamiliar with the necessary precautions on this receiver. The following are the necessary precautions to be observed before servicing this chassis.

1. An isolation Transformer should be connected in the power line between the receiver and the AC line before any service is performed on the receiver.
2. Always discharge the picture tube anode to the CRT conductive coating before handling the picture tube. The picture tube is highly evacuated and if broken, glass fragments will be violently expelled. Use shatter proof goggles and keep picture tube away from the unprotected body while handling.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as; non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.
4. Before returning the set to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as antennas, terminals, screwheads, metal overlays, control shafts etc. to be sure the set is safe to operate without danger of electrical shock. Plug the AC line cord directly into a 120V AC outlet (do not use a line isolation transformer during this check). Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner:

   Connect a 1500 ohm 10 watt resistor, paralleled by a 0.15 μF, AC type capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and 0.15 μF capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.675 volts rms. This corresponds to 0.45 milliamp. AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.

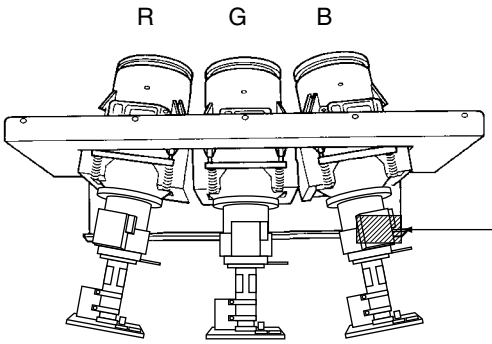

AC VOLTMETER
0.15 μF
Good earth ground such as a water pipe, conduit, etc.
Place this probe on each exposed metallic part.
1500 ohm
10 watt

PRODUCT SAFETY NOTICE

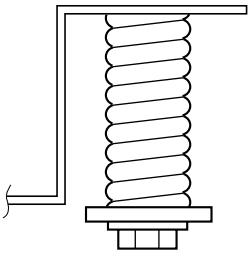
Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the international hazard symbols on the schematic diagram and the parts list.
Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, X-ray radiation or other hazards.

CRT ASSEMBLY REPLACEMENT AND MOUNTING

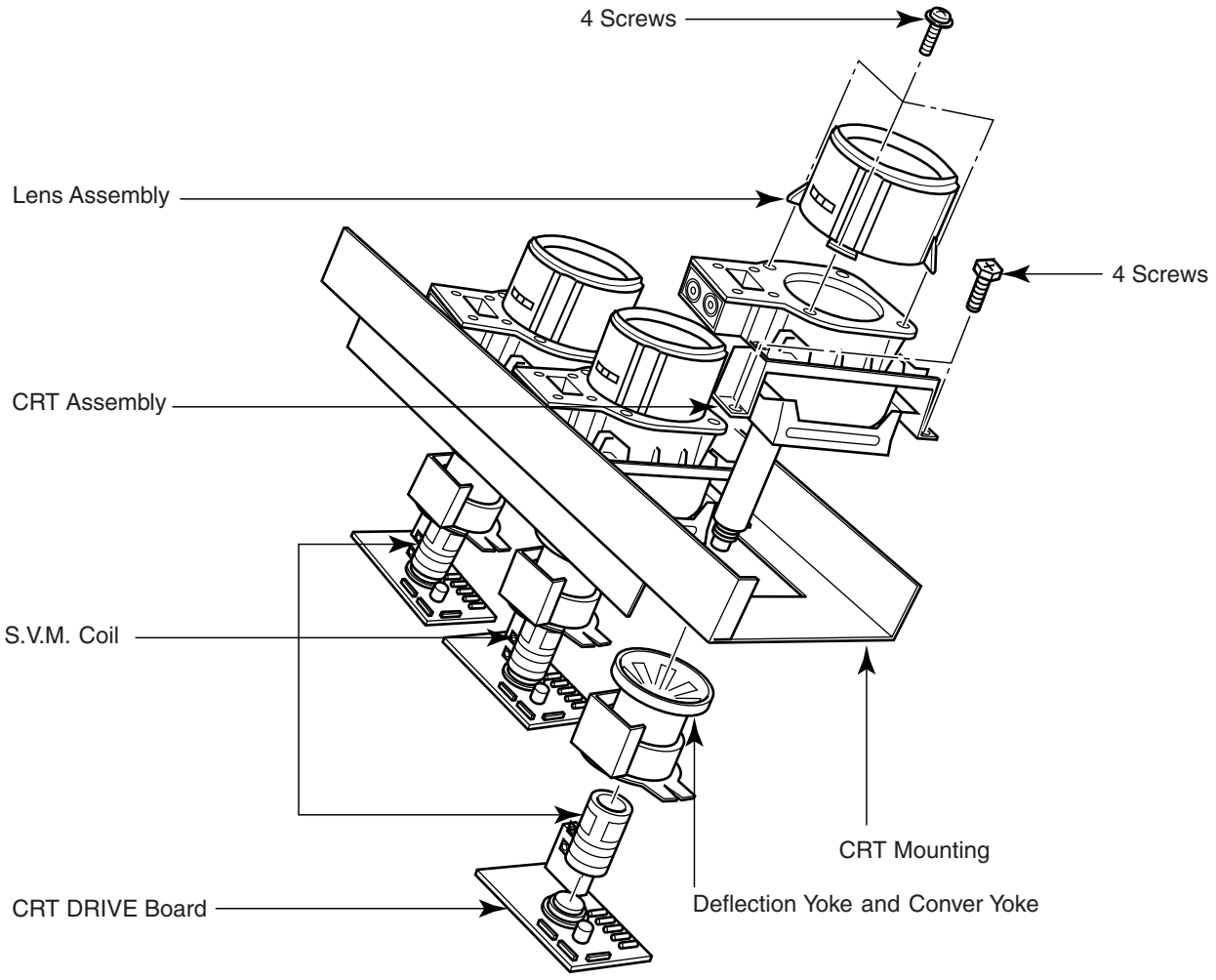
CAUTION : DO NOT LOOSEN THE HEX HEAD BOLTS WITH SPRINGS (12 PCS), BECAUSE THOSE ARE FOR SEALING OF CRT COOLANT.



Attention Serviceman



The Hex Head Bolts with Springs. (see sketch) used on CRT assembly, are NOT Adjustment Screws DO NOT LOOSEN-FLUID LEAKAGE WILL OCCUR.



Lens and Neck Components View

TO REMOVE CRT (Same procedure for R, G, B)

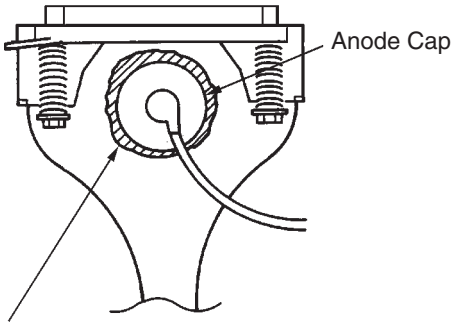
1. Remove CRT DRIVE Board, S. V. M. COIL and DEF. YOKE from CRT.
2. Remove Lens Assembly.
3. Detach CRT Anode Cap from CRT.
4. Remove CRT Assembly from CRT Mounting.

CRT REPLACEMENT (Same procedure for R, G, B)

Reverse the removal procedures except the followings.

1. Anode Cable should be replaced with new one. See “SERVICING PRECAUTIONS” shown below.
2. Install silicon (T461B) to the CRT, replace the Anode cable and put enough silicon again on around the Anode Cap as illustrated.

CAUTION: Align the Anode cable as illustrated on page 4.

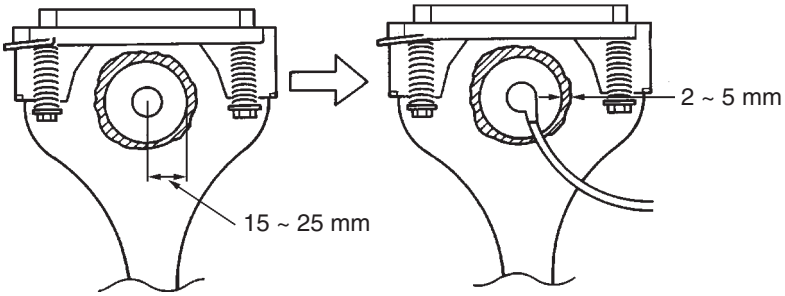


Silicon
(On shaded area)
TSE3843W #23960136

ADJUSTING PROCEDURE IN REPLACING CRT

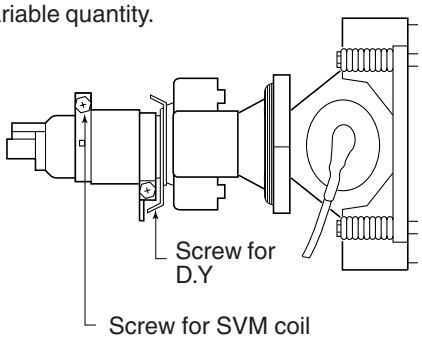
1. R.G.B. FOCUS ADJUSTMENT (page 7.)
2. PICTURE TILT ADJUSTMENT (page 7.)
3. USER CONVERGENCE CENTER CHECK (See owner's manual.)
4. CENTERING ADJUSTMENT (page 7.)
5. CONVERGENCE ADJUSTMENT (page 15.)
6. WHITE BALANCE ADJUSTMENT (page 12.)

Adjustments are complete.



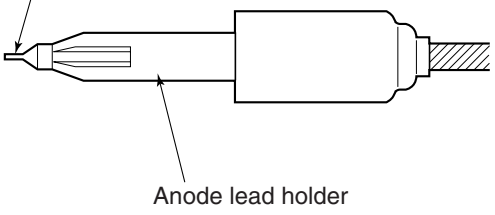
SERVICING PRECAUTIONS

■ Do not use a magnetized screw driver for screws of Deflection Yoke and Velocity Modulation Coil to avoid magnetization of electron gun. Magnetization of electron gun will degrade basic function and result in unbalance of right and left shift of user static convergence, and result in no variable quantity.



■ When replacing the anode cap assembly (CRT) or anode lead assembly (F.B.T.), remove the anode lead holder from old one and attach the holder again to new anode lead.

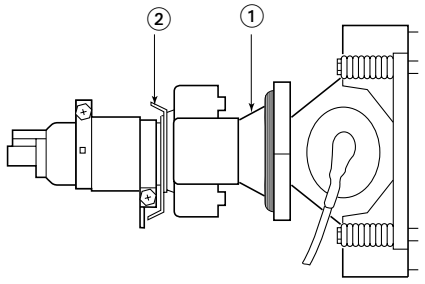
■ Check the point of anode lead in a straight line, if it is winding, please revise it.



WARNING : BEFORE SERVICING THIS CHASSIS, READ THE “X-RAY RADIATION PRECAUTION”, “SAFETY PRECAUTION” AND “PRODUCT SAFETY NOTICE” ON PAGE 3 OF THIS MANUAL.

PICTURE TUBE COMPONENTS ADJUSTMENT

DESCRIPTION OF NECK COMPONENTS



① Deflection yoke and convergence yoke
The position on the neck is required most front (CRT funnel side) and the screw is fastened after rotating yoke adjusting picture tilt.

② Centering magnet
After adjusting picture tilt, picture position is finally fixed by this magnet.
In order to get maximum margin of user convergence control for center of screen, this magnet have to be used for center convergence adjustment.

PREPARATION
Operate the receiver for at least 5 minutes.

R, G, B FOCUS ADJUSTMENT

1. Before adjusting the R, G, B FOCUS, remove the 4 screws of Lens Assembly which is fixed on the CRT Assembly. (See page 4.)
   Then turn around the Lens Assembly by 180 to adjust the fastening screw (Fig. a) and fasten the 4 screws to secure Lens Assembly.
2. Select the adjustment mode. (See page 10.)
3. Press “7” button to display the built-in cross-hatch.
4. Press “0” and “RTN” buttons to make the picture a single Red color.
   100 button ..... to erase Red color
   0 button ..... to erase Green color
   RTN button ..... to erase Blue color.
5. Loosen the fasten screw and adjust Red lens focus to best focusing point of picture center. Then fasten the screw. (See Fig. a.)

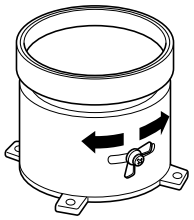


Fig. a

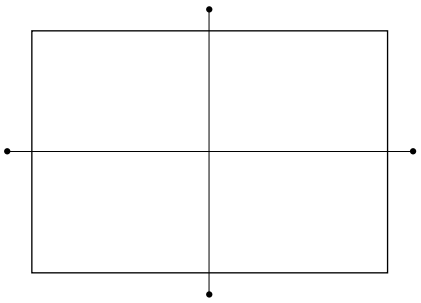
6. Adjust FOCUS VR “R” of FOCUS PACK to find best focusing point of picture center.
7. Repeat steps 3 to 5 for Green and Blue colors.

TILT ADJUSTMENT

Rotate R, G, B deflection yoke so that picture becomes horizon, then fasten screw.

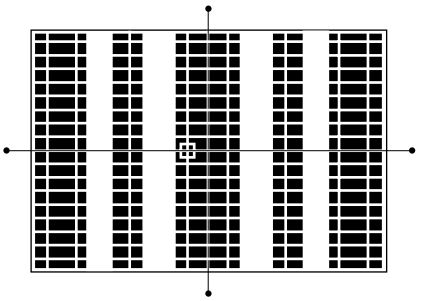
CENTERING ADJUSTMENT

1. Stretch a thread between two center of screen edge (top and bottom, left and right).



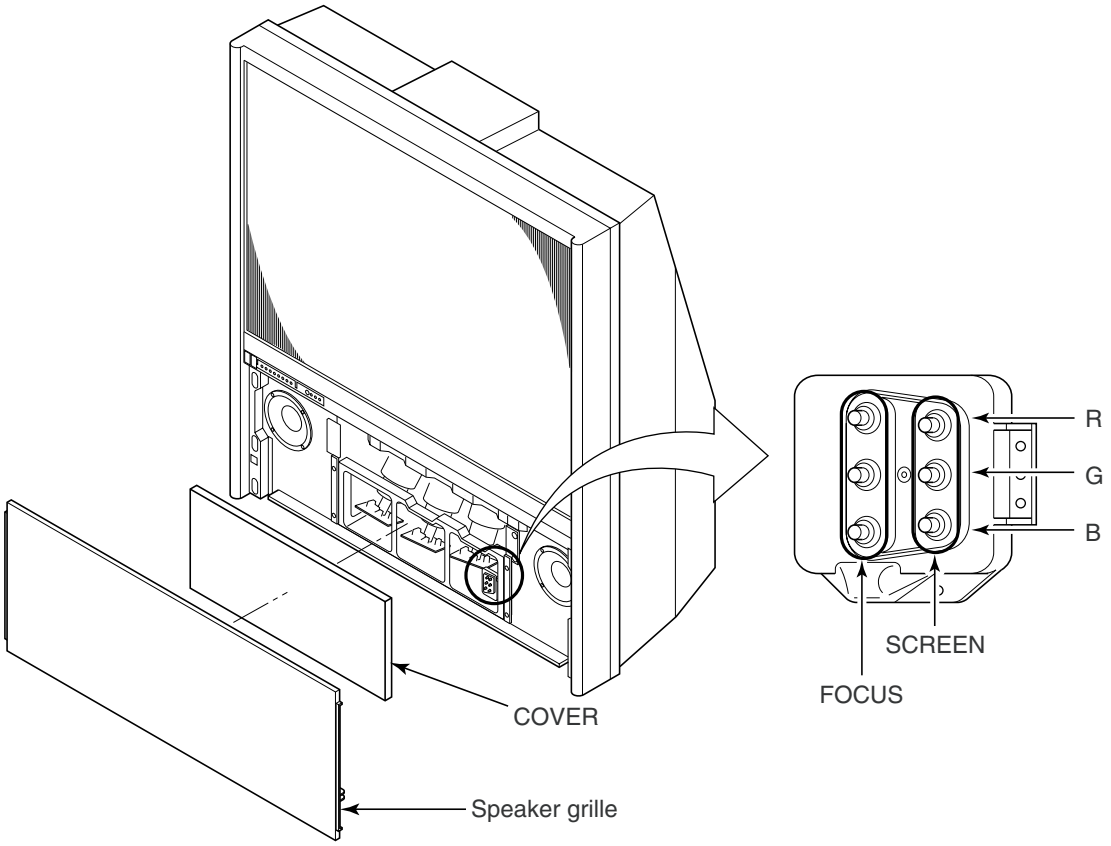
2. Receive NTSC.
   Then select SERVICE MODE. (See Page 10.)

3. Select CONVERGENCE ADJUSTING mode, and press "7" button to display the internal net pattern.
   Move Cursol and recognize horizontal line indicated Y:4. This line is vertical center. Push "9" button to display the vertical stripes, and recognaize horizontal center.



4. Perform VCEN adjustment. (See page 16.)
5. Adjust G centering magnet so that the cross-bar pattern center comes to screen center.
6. Perform HEIGHT adjustment .
7. Perform VERT. LINEARITY adjustment.
8. Perform WIDTH adjustment. (See page 16.)
9. Check whole quality of green line.
10. Adjust R, B centering magnet so that the cross-bar pattern center comes to screen center.

LOCATION OF SCREEN AND FOCUS VR'S

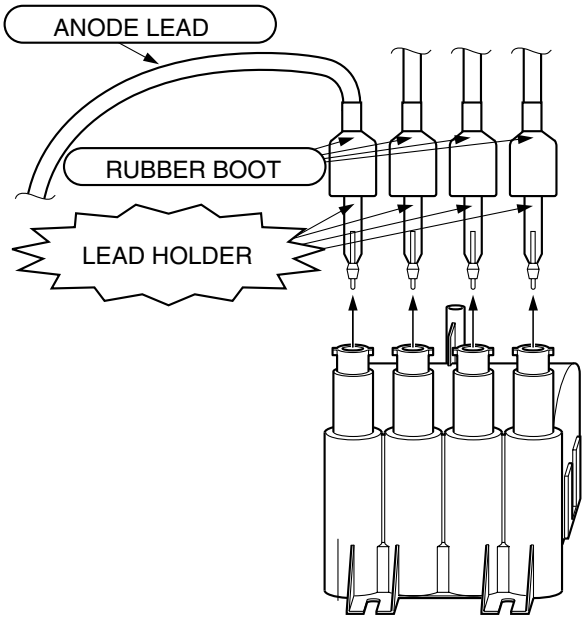


REPLACEMENT OF THE CRT

Service parts are provided for each R, G and B.
The contents of the parts are as follows.

		R	G	B
46H84/57H84	HOKUTO	2334118	2334119	2334120
51H84	HITACHI	2334122	2334123	2334124

REPLACEMENT OF HIGH VOLTAGE CABLE



Z450 TPA5011

Fig. a

1. When replacing Anode Lead or Anode Cap with new one, remove Lead Holder from old lead as shown in figure below, and put it on new lead. Do not throw away Lead Holder.

NOTE : THE LEAD HOLDER IS ATTACHED TO TPA5011 (Z450), BUT IS NOT ATTACHED TO ANODE LEAD AND ANODE CAP. RUBBER BOOT IS ATTACHED TO ANODE LEAD AND ANODE CAP.

2. Detaching Lead Holder

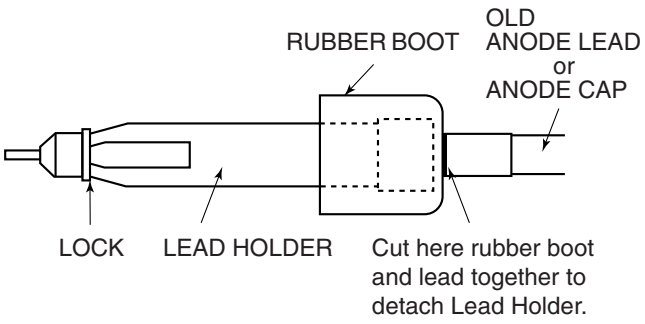


Fig. b

SERVICE MODE

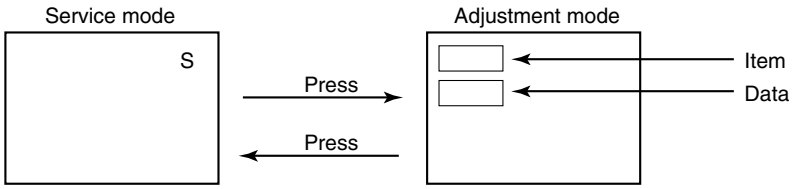
1. ENTERING TO SERVICE MODE

1) Press MUTE button twice on Remote Control.
2) Press MUTE button again to keep pressing.
3) While pressing the MUTE button, press MENU button on TV set.

(Service mode display)

2. DISPLAYING THE ADJUSTMENT MENU

1) Press MENU button on TV.



3. KEY FUNCTION IN THE SERVICE MODE

The following key entry during display of adjustment menu provides special functions.

Screen adjustment mode ON/OFF:	TV (ANT)/VIDEO button (on TV)
Selection of the adjustment items :	Channel ▲/▼ (on TV or Remote)
Change of the data value :	Volume ▲/▼ (on TV or Remote)
Adjustment menu mode ON/OFF :	MENU button (on TV)
Initialization of the memory (QA02) :	RECALL+Channel button on TV (▲)
Initialization of the self diagnostic data:	RECALL+Channel button on TV (▼)

“RCUT” selection :	1 button
“GCUT” selection :	2 button
“BCUT” selection :	3 button
“SCNT” selection :	4 button
“COLC” selection :	5 button
Convergence adj :	7 button
Self diagnostic display :	9 button

4. SELECTING THE ADJUSTING ITEMS

1) Every pressing of CHANNEL ▲ button in the service mode changes the adjustment items in the order of table-2. (▼ button for reverse order)

Refer to table-2 for preset data of adjustment mode.
(See SETTING & ADJUSTING DATA on page 20)

5. ADJUSTING THE DATA

1) Pressing of VOLUME ▲ or ▼ button will change the value of data in the range from 00H to FFH. The variable range depends on the adjusting item.

6. EXIT FROM SERVICE MODE

1) Pressing POWER button to turn off the TV once.

■ INITIALIZATION OF MEMORY DATA OF QA02

After replacing QA02, the following initialization is required.

1. Enter the service mode, then select any register item.
2. Press and hold the RECALL button on the Remote, then press the CHANNEL ▲ button on the TV. The initialization of QA02 has been complated.
3. Check the picture carefully. If necessary, adjust any adjustment item above.
   Perform “Programming Channel Memory” on the owner's manual.

CAUTION: Never attempt to initialize the data unless QA02 has been replaced.

7. SELF DIAGNOSTIC FUNCTION

1) Press “9” button on Remote Control during display of adjustment menu in the service mode.
   The diagnosis will begin to check if interface among IC’s are executed properly.
2) During diagnosis, the following displays are shown.

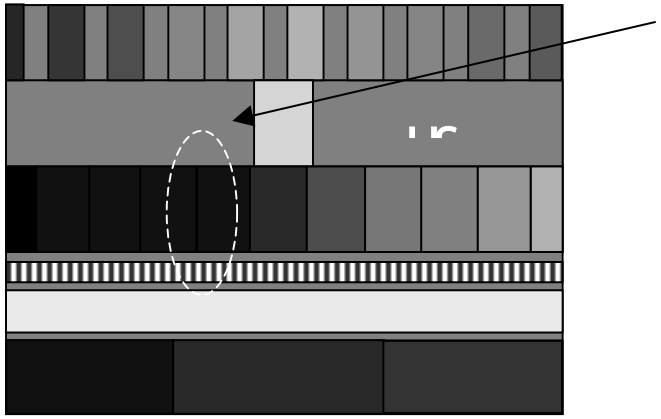
```
   SELF CHECK
①──NO. 23 * * * * * *
②──POWER     : 000
③──BUS LINE  : OK
④──BUS CONT : OK
⑤──BLOCK : MAIN  SUB
⑥──SET ID : 01
⑦──EEP VER : 02
⑧──OPT1 : 05      OPT2 : 70
      HDMI
⑨──NO * * * * * * * *
⑩──ERR CODE : ○○
```

① Part number of microprocessor (QA01)
② Operation number of protection circuit (current limiter) . . . . “000” is normal.
③ BUS line check
- “OK” ..... Normal
- “SCL-GND” or “NG” ..... SCL-GND short circuit
- “SDA-GND” or “NG” ..... SDA-GND short circuit
- “SCL-SDA” or “NG” ..... SCL-SDA short circuit

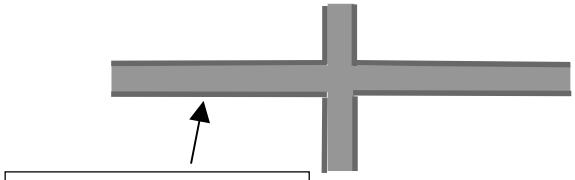
④ BUS line ACK (acknowledge) check
- “OK” ..... Normal
- Display of Location Number . . . . NG
  (Display example)
  “QA02 NG”, “H001 NG”, “Q501 NG” etc.
- Note: The indication of failure place is only one place though failure places are plural. When repair of a failure place finishes, the next failure place is indicated. (The order of priority of indication is left side.)

⑤ Sync. signal check
- Green display ..... Normal
- Red display ..... NG
  - MAIN ..... Main sync
  - SUB ..... Sub sync (when turn on the PIP)

⑥ ID code for TV Set
⑦ Version of "EEP"
⑧ Data for "OPT"
⑨ Part number of HDMI microprocessor
⑩ HDMI error code

ADJUSTING ITEM	PROCESS INSTRUCTIONS	SIGNAL	ADJUSTMENT SPECIFICATION
SCREEN ADJUST	1. Heart run minimum 15minutes. 2. Go into screen adjustment mode. Adjust Focus pack Screen VR of Red, Green, and Blue by looking directly into each CRT and adjusting each screen VR until CRT is just lit on left side of CRT.		
WHITE BARANCE ADJUSTMENT	1. Adjust white luster level to get 4.3cd/m2 on dark area, and get 264.3cd/m2 on bright area. 2. Using the data up and down keys, cycle through the adjustments for RED DRIVE, BLUE DRIVE, RED BIAS and BLUE BIAS. Adjust RED DRIVE, BLUE DRIVE for bright area, and adjust RED BIAS and BLUE BIAS for dark area. 3. Continue to make adjustments color temperature to spec on each area.	White luster signal (Valuable input level)	10500k+0UV Same spec is applied on dark area and bright area.
SUB-BRIGHT ADJUSTMENT	1. Receive channel 3 Sub-Bright pattern. 2. Go into BRTC of service mode. 3. Press DATA UP/DOWN to adjust Sub-Bright level to spec. 5th bar sunk 	CHANNEL 3 SUB-BRIGHT SIGNAL	5TH±1 BAR SUNK

FOCUS ADJUSTMENT (1/2)

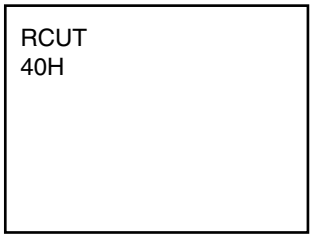
ITEM	ADJUSTMENT METHOD
Focus Adjustment	(Condition) • User Adjustment : SPORTS (CONTRAST MAX, BRIGHTNESS CENTER) • Adjust after Centering Magnet adjusts. • Signal : Lens Focus : R Dot cross (NTSC) G Dot cross (NTSC) B Dot cross (NTSC) Electrical Focus : R Dot cross (NTSC) G Dot cross (NTSC) B Dot cross (NTSC) (Adjustment) 1. Common Items 1) Rough Adjust the lens focus and electrical focus of each color(R, G, B). 2. Green Adjustment 1) Receive green single color by shielding jig. 2) Receive the Dot Cross pattern. 3) Adjust Green electrical focus. Adjust Green electrical focus VR on focus pack (Z410) for best center focus. If the focus blur on screen center and circumference, adjust the electrical focus is best point on all of screen. 4) Adjust Green lens focus. Receive the Dot Cross pattern. Adjust Green lens for best center focus. Green lens focus adjustment target Dot-cross has red flare (red flare width :1mm)  5) Repeat (3)~(4),and adjust best focus point.

FOCUS ADJUSTMENT (2/2)

ITEM	ADJUSTMENT METHOD
Focus Adjustment	3. Red Adjustment 1) Receive Red single color by shielding jig. 2) Receive the Dot Cross pattern. 3) Adjust Red electrical focus. Adjust Red electrical focus VR on focus pack (Z410) for best center focus. 4) Adjust Red lens focus. Receive the Dot Cross pattern. Adjust Red lens for best center focus. 5) Repeat (3)~(4),and adjust best focus point. 4. Blue Adjustment 1) Receive Blue single color by shielding jig. 2) Receive the Dot Cross pattern. 3) Adjust Blue electrical focus. Adjust Blue electrical focus VR on focus pack (Z410) for best center focus. (The Brightness is minimum point of Blue.) 4) Adjust Blue lens focus. Receive the Dot Cross pattern. Adjust the Blue lens for best center focus. After easy lens adjustment, turn to right side lens focus screw, and so dot-cross has flare. Next turn left focus screw, so flare disappears in Dot-Cross and Dot-Cross become blur. This point is blue lens focus adjustment target. (flare disappear and become blur)

CONVERGENCE ADJUSTMENT

1. Receive NTSC signal.
2. Enter to the service mode. (See Page 10.)



3. Press "7" button to enter the convergence adjusting mode, and the internal net pattern will be displayed. Then, press "9" button to display veritcal stripes.
4. Select the point and the color by pressing following buttons. (Cursor should be blinking.)
   "2", "8", "4", "6" : To select point
   "3" : To select color
5. Then press "5" button, and adjust the convergence by pressing following buttons. (Cursor should not be blingking.)
   "2", "8", "4", "6" : To adjust convergence
   "3" : To select color
6. Repeat from steps 3 to 4 until the convergence and the geometry become fine. (See Page 14.)
7. Press "7" button to memorize the adjusted data.
8. Message of "PLEASE PUSH TOUCH FOCUS" will be displayed, and press TOUCH FOCUS button which is located on the front panel.
9. TOUCH FOCUS CALIBRATION will start.
10. Soon message of "CALIBRATION FINISHED" will be displayed, and then a normal picture will be displayed.
11. Then push TOUCH FOCUS button again, and confirm that the convergence does not change.

Note: If message of "TOUCH FOCUS ERROR" is displayed,
1) Check the connection between four sensors and Convergence Unit.
2) Check the geometry of internal net pattern. (See Page 14.)

If any problem cannnot be found, hardware might have problem.

EXPLANATION OF KEY-FUNCTION IN THE CONVERGENCE ADJUSTMENT MODE

Load BACK UP DATA:	1 button
Up :	2 button
Selet Green color:	3 button
Left :	4 button
Blinking of cursor ON/OFF:	5 button
Right:	6 button
Adjust mode ON/OFF:	7 button
Down:	8 button
Vertical stripe ON/OFF	9 button
Erase Green line:	0 button
Erase Red line:	100 button
Erase Blue line:	ENT button

Note: The following message will appear while pressing "1" button.
ENTER: TO LOAD BACKUP DATA
MUTE: TO LOAD INITIAL DATA
EXIT: TO EXIT

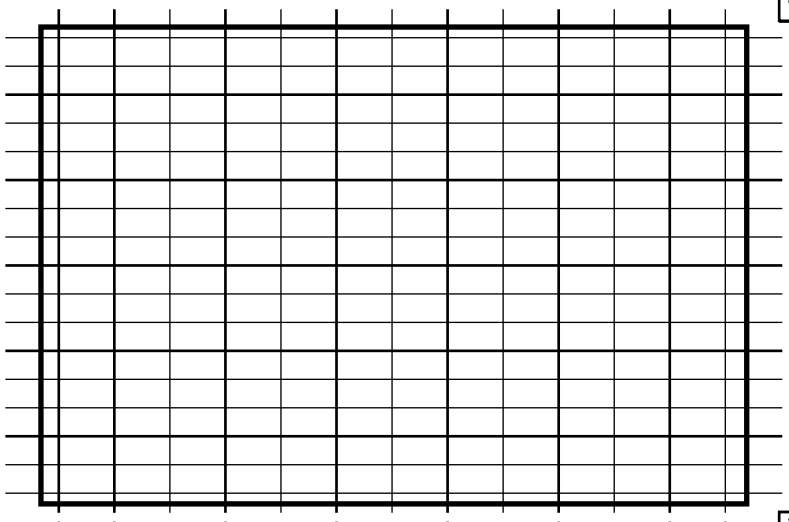
BACKUP DATA sets in factory by performing CALIBRATION. BACKUP DATA updates by performing CALIBRATION again. INITIAL DATA uses the seed data on this model. Thus, it cannot updates. INITIAL DATA is not adjusted. Therefore, convergence data operates incorrectly. Normally, BACKUP DATA operates as base data on this model. If BACKUP DATA is incorrectly operated, INITIAL DATA is operated instead of BACKUP DATA.

DEFRECTION and CONVERGENCE

ITEM	NAME	SETTING	INPUT SIGNAL	TEST POIN	MEASURING INSTRUMENT	ADJUSTMENT METHOD	ADJUSTMENT SPEC
VCEN	VERTICAL Raster centeing Adjustment	CONTRAST :MAX BRIGHTNESS:CNT COLOR :CNT TINT :CNT	Retma Signal	Between TP-G to TP-V	Digital Volt Meter	Adjust the vdtagebetwen TP-G and TP-V.	0±10 mV
DY Tilt Adjustment		CONTRAST: MAX BRIGHTNESS:CNT COLOR :CNT TINT :CNT PIC SIZE :FULL	D-Cross Pattern	Picture Adjustment	Picture Adjustment	After roughly the green centering magnet alignment, adjust the green yoke so that the D-cross is as close as possible to the dummy screen cross. Adjust the Red and Blue in the same manner as Green.	The dummy screen cross and D-cross Gap ± 5mm.
Centering magnet Adjustment		CONTRAST: MAX BRIGHTNESS:CNT COLOR :CNT TINT :CNT PIC SIZE :FULL	Retma Signal	Picture Adjustment	Picture Adjustment	Adjust the green center to the screen center with the centering magnet on Retma signal. And adjust the Red and Blue center to the green center each.	Color gap at the screen center is within ± 3mm.
WID	Horizontal Adjustment (FULL)	CONTRAST :MAX BRIGHTNESS:CNT COLOR :CNT TINT :CNT PIC SIZE : FULL C-MUTE :ON	Retma Signal	Picture Adjustment	Picture Adjustment	Adjust the Horizontal width by WID on the green raster only. After finishing Convergence adjustment, make sure that the width is the same as the spec.	11 ± 1 bar In case of C-MUTE OFF is the same spec as well.
HIT (VLIN)	Vertical Adjustment (FULL)	CONTRAST :MAX BRIGHTNESS: CNT COLOR :CNT TINT :CNT PIC SIZE : FULL C-MUTE : ON	Retma Signal	Picture Adjustment	Picture Adjustment	Adjust the Vertical height by HIT(VLIN) on the green raster only.After finishing Convergence adjustment, make sure that the height is the same as the spec with C-MUTE OFF.	In case of Convergence mute. Upper left...5 ± 0.5 bar Bottom right...5 ± 0.5 bar In case of C-MUTE OFF. Upper left...4 ± 0.5 bar Bottom right...4 ± 0.5bar.
Convergence			Retma Signal	Picture Adjustment	Picture Adjustment	Refer to the following (Convergence Net Geometry)	

CONVERGENCE (46 / 51 / 57 WIDE)

Net Pattern Geometry



Model	46WIDE	51WIDE	57WIDE
V size	572.850	635.085	708.750
	278.4	308.0	344.0
	208.8	231.0	258.0
	104.4	115.5	129.0
	0.0	0.0	0.0
	104.4	115.5	129.0
	208.8	231.0	258.0
	278.4	308.0	344.0
V span	34.8	38.5	43.0

Model	H size										H span
46WIDE	1018.4	485.0	404.1	242.5	80.8	0.0	80.8	242.5	404.1	485.0	80.8
51WIDE	1129.0	537.6	448.0	268.8	89.6	0.0	89.6	268.8	448.0	537.6	89.6
57WIDE	1260.0	600.0	500.0	300.0	100.0	0.0	100.0	300.0	500.0	600.0	100.0

UNIT: mm

NOTES

In many cases, color misconvergence may be corrected by returning HIT and WID data in main deflection side to initial adjusting values. Following cases will surely require readjustment of convergence.

CRT REPLACEMENT

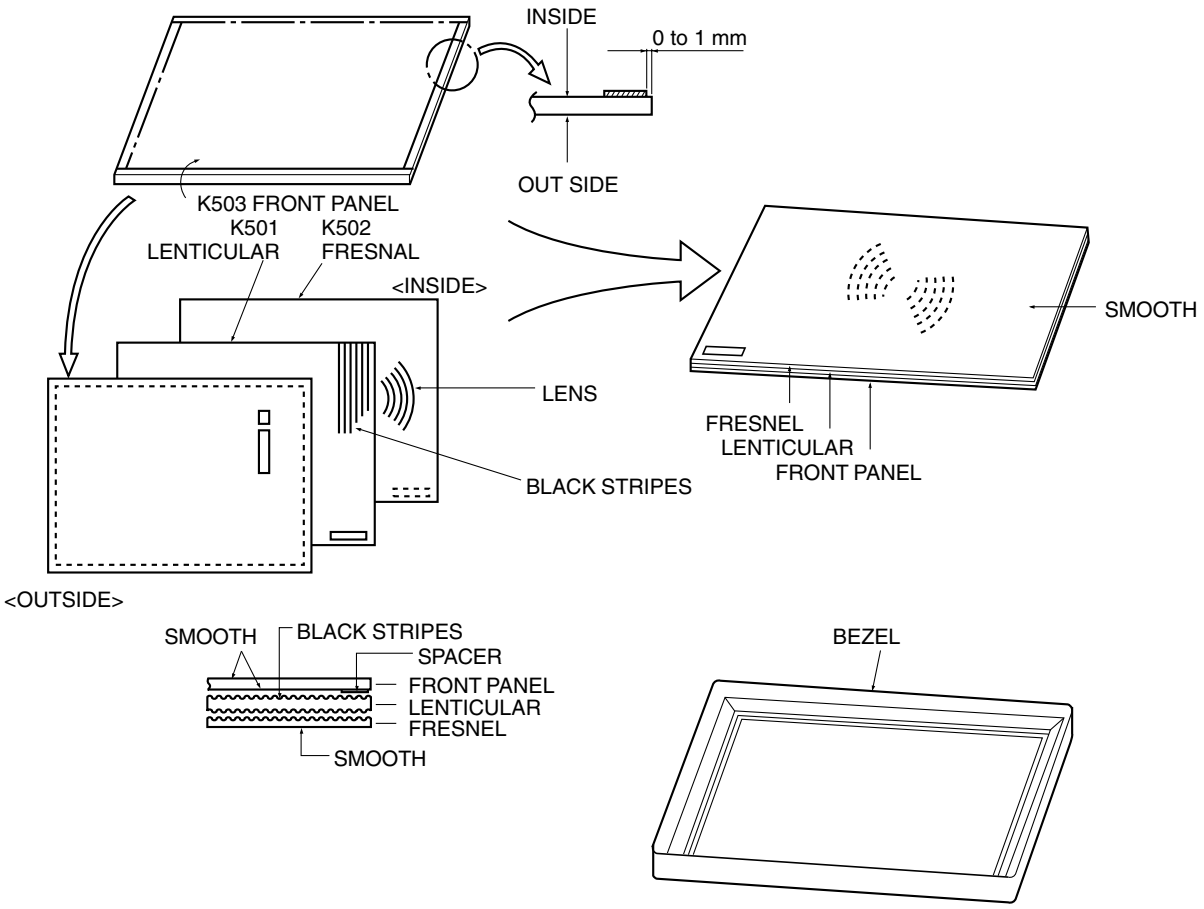
When CRT is replaced, main deflection readjustment and color matching are required.
Perform following procedures.

1. Replace two CRT's of blue and red.
2. Perform horizontal adjustment for blue and red yokes on base of green CRT data. Mount yoke and velocity mod. coil alignment, pushing towards CRT without gap.
3. Adjust alignment of blue and red. (Refer Alignment adjustment for details.)
4. Rotating centering magnet, adjust CRT centers of red and blue to CRT center of green.
   (Picture position adjustment)
5. Adjust HIT and WID data of main deflection, and decide data at the most precise screen comparing to green data.
6. Adjust convergence of screen picture for color matching. Do not move green one at this time.
7. After convergence adjustment of screen picture finishes, replace green CRT.
   For green CRT as well, repeat steps 2 to 5 above on bases of red and blue color matching to adjust convergence.
8. Execute TOUCH FOCUS following instructions displayed on the screen after finishing convergence adjustments of all the colors.
   Note: Press button "7" again after "PLEASE PUSH TOUCH FOCUS" has been displayed. Then, TOUCH FOCUS will not be executed, and the current state of convergence will be displayed.

SCREEN AND MIRROR ALIGNMENTS

ASSEMBLING OF FRONT SCREEN

MOUNTING OF FRONT SCREEN



CAUTION : Do not hold the optical system parts (lens and mirror) with bare hand to avoid finger-prints on the surface of those parts.

HOW TO CLEAN LENS AND MIRROR

1. Be sure to remove sand dust with an air brush, etc.
2. When it is stained slightly, breathe upon it and wipe away with the specified cleaning cloth.
   For other stains than the above, wipe the stains away with the specified cloth into which a cleaning liquid has been soaked.

Cleaning liquid..... **LENS LUSTER** (Manufactured by Edmund Scientific Co.), etc.

HOW TO CLEAN SCREEN

When cleaning the screen, use a soft cloth so as not to damage the screen.

1. Wipe the screen with a dry cloth to remove moisture on the screen.

Note : Absolutely do not use detergent, water, alcohol, benzine, thinner, etc. for cleaning in order not to wipe away the black print on the surface.

CIRCUIT CHECKS

HIGH VOLTAGE CHECK

CAUTION: There is no HIGH VOLTAGE ADJUSTMENT on this chassis. Checking should be done following the steps below.

1. Connect an accurate high voltage meter to the anode of the picture tube.
2. Turn on the receiver. Set the BRIGHTNESS and CONTRAST to minimum (zero beam current).
3. High voltage must be measured below (B) kV.
   Refer to table-1 for high voltage (B).
   (See SETTING & ADJUSTING DATA on page 20)
4. Vary the BRIGHTNESS to both extremes to be sure the high voltage does not exceed the limit under any conditions.

CAUTION:

When the following parts fail, check the High Voltage after replacing.

Location No.	Name	Descriptions
		46", 51", 57"
T461	Flyback	TFB3094AS
C440	Capacitor	1000pF, ±3%
C443	Capacitor	4700pF, ±3%
C444	Capacitor	3600pF, ±3%
C467	Capacitor	5600pF, ±5%
C468	Capacitor	6800pF, ±5%

ANODE VOLTAGE MEASURING METHOD

CAUTION: Take extra precaution when measuring this high voltage. High voltages are also present in surrounding circuit boards (CRT DRIVE assembly, DEFLECTION assembly, and POWER SUPPLY assembly).

1. Disconnect the FBT anode cable as outlined below. Measure high voltage at the point where the cable enters the FBT.
2. Holding the rubber cover firmly, turn it counterclockwise and check that the lock has been disengaged. (See Fig. b on page 9.)
3. Determine the extent of the rubber cover before disconnecting the cable.
4. Pull straight up the anode cable to disconnect.
5. When reconnecting the cable, proceed in the reverse order. After reconnecting, tug on the cable to check that it is secure.

FS CIRCUIT CHECK

The Fail Safe (FS) circuit check is indispensable for the final check in servicing. Checking should be done following the steps below.

1. Turn the receiver on.
2. Temporarily short TP- (R) and TP- (X) on the DEF/POWER Board with a jumper wire.
   Raster and sound will disappear.
3. The receiver must remain in this state even after removing the jumper wire. This is the evidence that the FS circuit is functioning properly.
4. To obtain a picture again, temporarily turn the receiver off and allow the FS circuit more than 5 seconds to reset. Then turn the receiver on to produce a normal picture.

CHAPTER 2 SPECIFIC INFORMATIONS

SETTING & ADJUSTING DATA

【SAFETY INSTRUCTIONS】

		46", 51", 57"
HIGH VOLTAGE AT ZERO BEAM:	(A)	32.8 kV
MAX HIGH VOLTAGE:	(B)	33.9 kV

Table-1

【SERVICE MODE】

ADJUSTING ITEMS AND DATA IN THE SERVICE MODE:

Item	Name of adjustment	Preset	Data
RCUT	R CUT OFF	80H	←
BCUT	B CUT OFF	80H	←
RDRV	R DRIVE	40H	←
BDRV	B DRIVE	40H	←
BRTC	BRIGHT CENTER	80H	←
HIT	PICTURE HIT	30H	←
LIN	V LINEARITY	12H	←
VSC	V S CORRECTION	29H	←
WID	PICTURE WIDTH	48H	←

Item	Name of adjustment	Preset	Data
COLC	COLOR CENTER	5DH	←
VCP	V COMPENSATION	06H	←
PARA	EW PARABOLA	0FH	←
CNR	EW M CORRECTION	10H	←
HCP	H COMPENSATION	00H	←
VFC	V f CORRECTION	00H	←
VCEN	V CENTERRING	7AH	←
TVOP	TV OPTION	40H	←

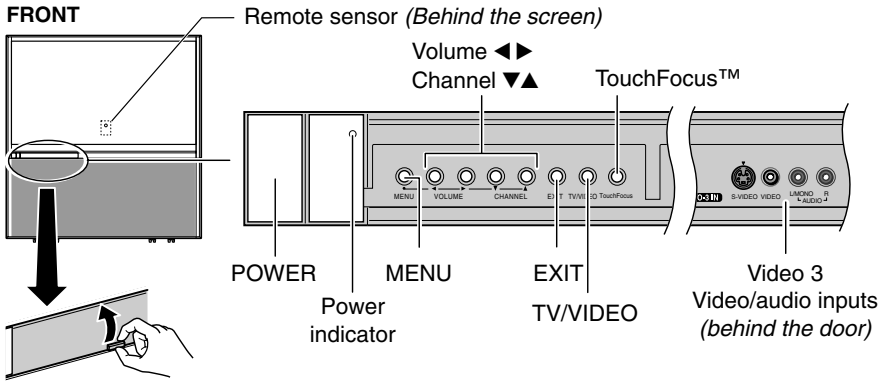
Table-2

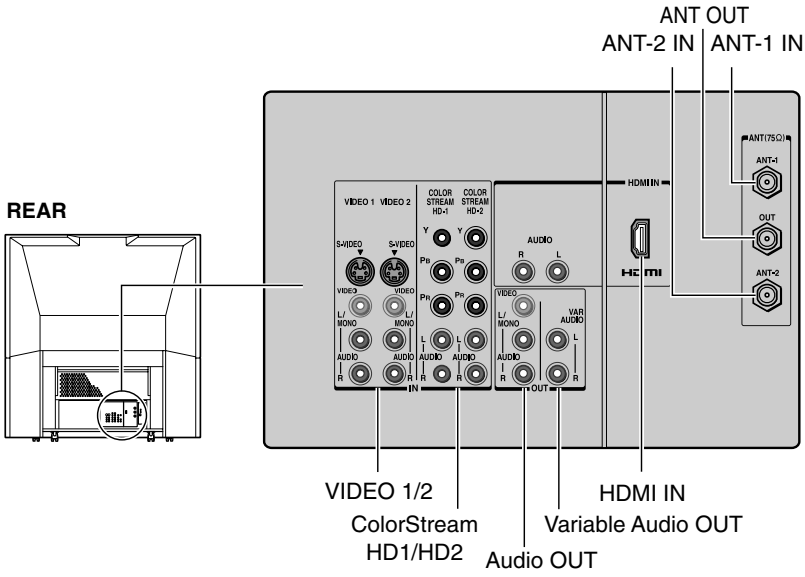
【CIRCUIT CHECKS】

HIGH VOLTAGE DET	Q306 #⑧pin-GND	9.0 V

Table-3

LOCATION OF CONROLS (Representative:57H84)





Learning about the remote control

The buttons used for operating the TV only are described here.

POWER turns the TV on and off

RECALL displays screen information

SLEEP sets the TV to turn off at a specific time

TV/VIDEO selects video input source

MUTE mutes the sound

Device Switch switches between TV, CBL/SAT/VCR, and DVD)
Set to "TV" to control the TV.

CH (channel) ▲▼ cycles through programmed channels

Channel Numbers (0-9, 100) allow direct access to channel

VOL (volume) ▲▼ adjusts the volume level

CH RTN returns to the memorized channel

MENU allows access to on-screen programming menus

ENTER activates the function settings in the menu

▲▼◄► select or adjust programming menus

POP CH ▲▼ selects the POP (picture-out-picture) channel

FAV ▲▼ cycles through favorite channels

FAVORITE allows access to the favorite channel search function

PIC SIZE cycles through the five picture sizes: Natural, Theater Wide 1, 2, 3, and Full

EXIT exits programming menus

SPLIT turns the POP feature on and off

SOURCE selects the POP picture source

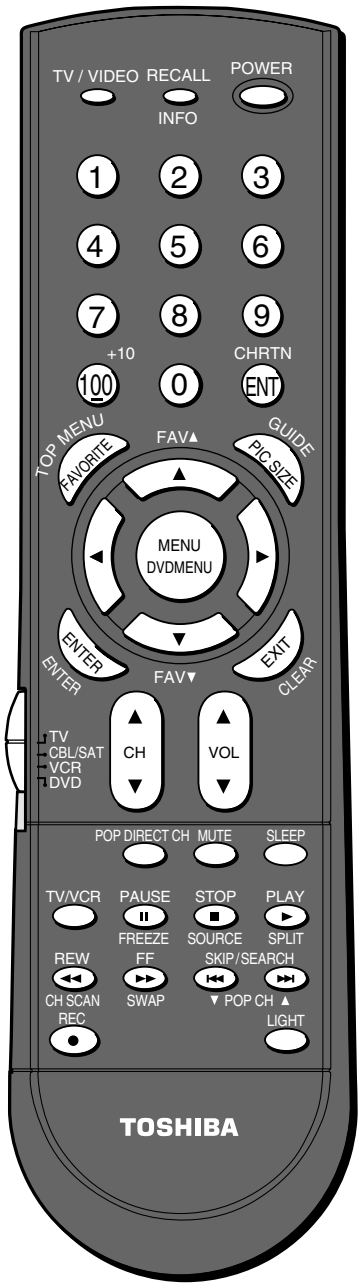
FREEZE freezes the picture. Press again to restore the picture.

SWAP switches the main and POP pictures

POP DIRECT CH allows direct access to POP channels

CH SCAN allows access to the programmed channel search function

LIGHT illuminates the keypad for five seconds



Note:

The error message "Not Available" will appear if you press a key for a function that is not available.

ADDING CHANNELS TO THE TV'S MEMORY

When you When you press Channel▲or▼, your TV will stop only on the channels stored in the TV's channel memory. Follow the steps below and on the next page to program all active channels into the TV's memory.

Programming channels automatically

Your TV can automatically detect all active channels in your area and store them in its memory. After the channels are stored automatically, you can manually add or erase individual channels. To program channels automatically:

1 Press MENU, and then press ◀ or ▶ until the SET UP menu appears.

2 Press▲or▼until the TV/CABLE is highlighted, and then press ENTER to display the pull-down menu.

3 Press▲or▼to highlight either TV or CABLE, depending on which you use. If you use an antenna, highlight TV; if you use cable, highlight CABLE.

4 Press ENTER.

5 Press▼to select CH PROGRAM.

6 Press ENTER to start channel programming. The TV will automatically cycle through all the TV or Cable channels (depending on which you selected), and store all active channels in the channel memory.
While the TV is cycling through the channels, the message "Programming Now—Please Wait" appears.

7 When channel programming is complete,the message "Completed" appears.

8 Press Channel▲or▼to view the programmed channels.

Note:
To tune the TV to a channel not programmed in the channel memory, you must use the Channel Number buttons on the remote control.

Adding and erasing channels manually

After you have programmed the channels automatically, you can manually add or erase specific channels.
To add or erase channels:

1 Select the channel you want to add or erase. If you are adding a channel, you must select the channel using the Channel Number buttons.

2 Press MENU, and then press ◀ or ▶ until the SET UP menu appears.

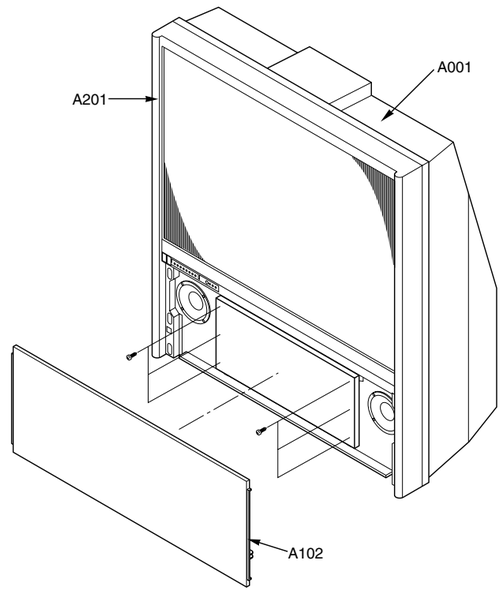
3 Press ▲or▼ to highlight ADD/ERASE, and then press ENTER to display the pull-down menu.

4 Press▲or▼to select ADD or ERASE, depending on the function you want to perform.

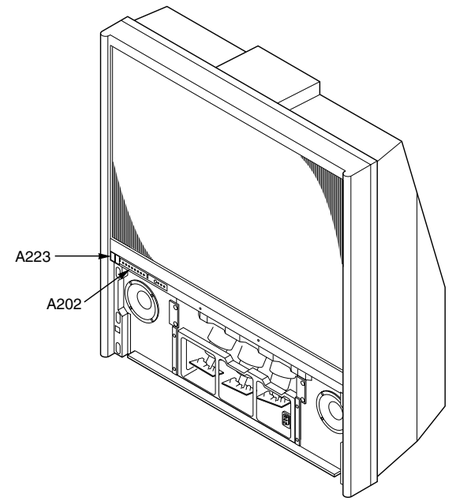
5 Repeat steps 1-4 for other channels you want to add or erase.

MECHANICAL DISASSEMBLY

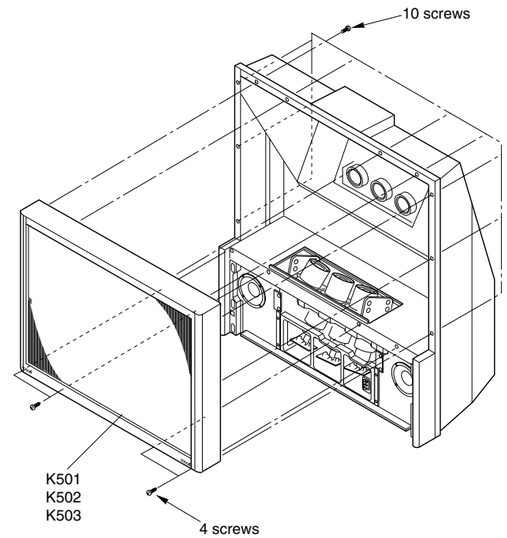
1 Speaker Grille Removal



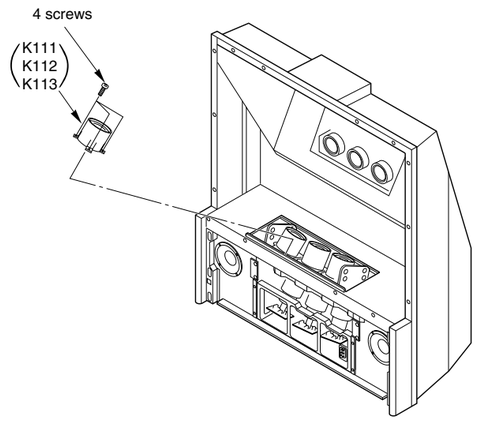
2 Control Panel Removal



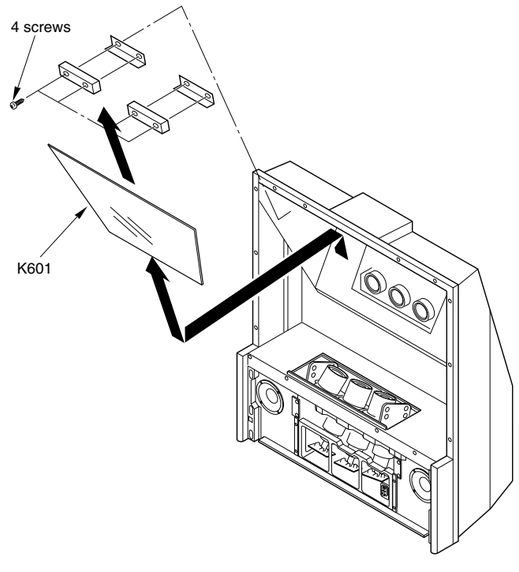
3 Front Mask Removal



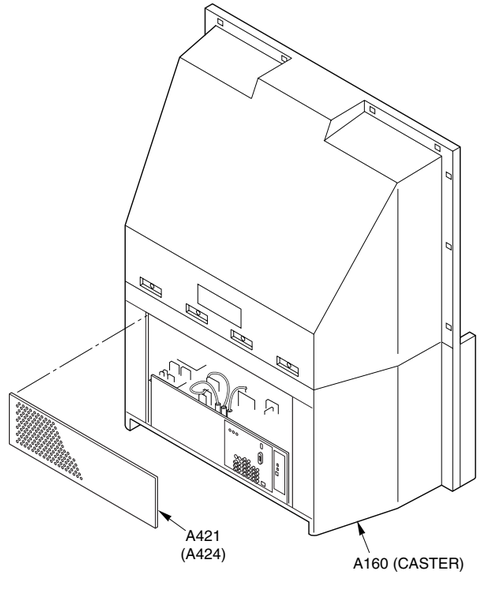
4 Shield Plate, Lens Removal



5 Mirror Removal



6 Back Board Removal



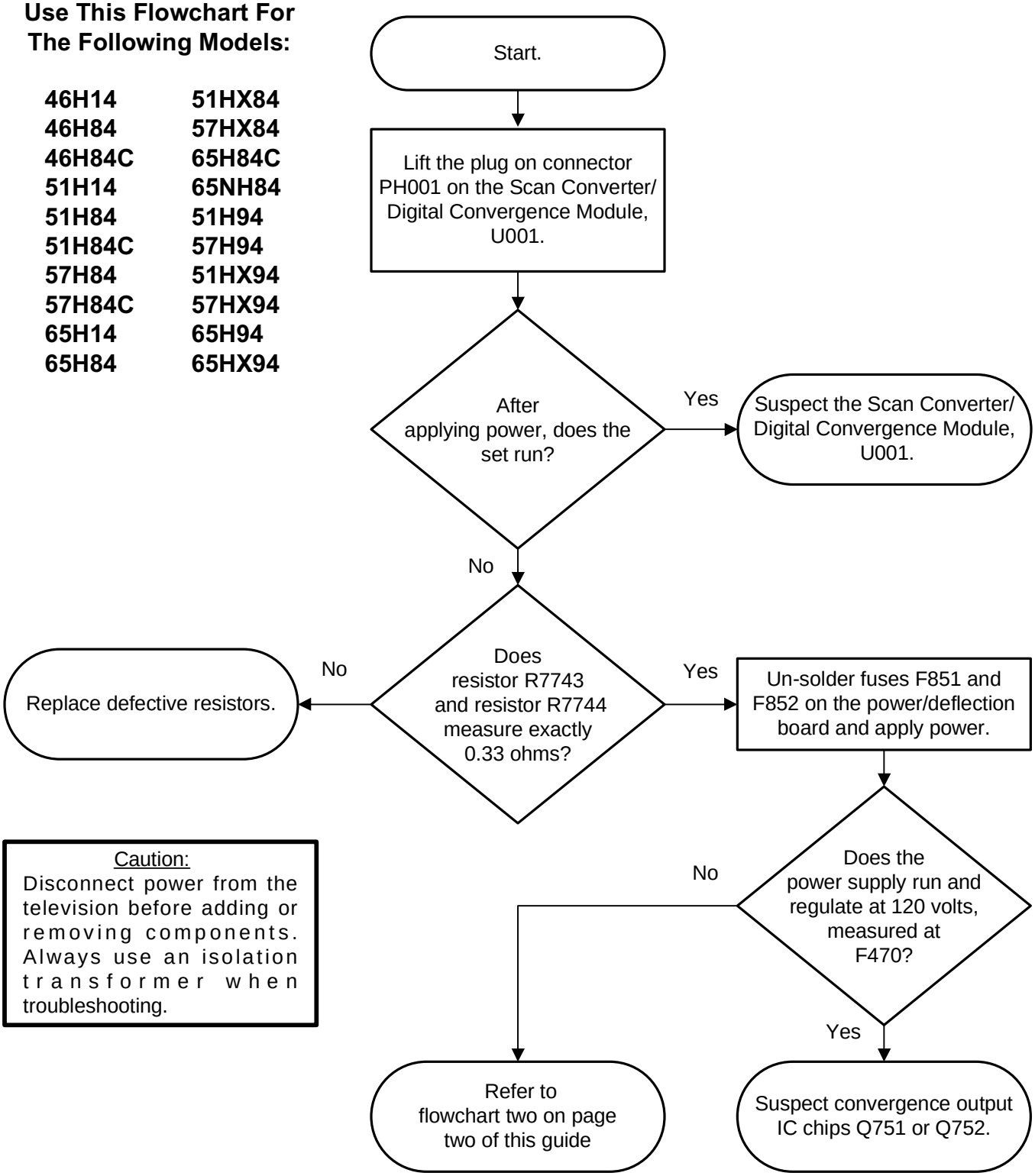
Shutdown Troubleshooting Guide

2004 HDTV Projection Models

Flowchart One

Use This Flowchart For The Following Models:

46H14	**51HX84**
46H84	**57HX84**
46H84C	**65H84C**
51H14	**65NH84**
51H84	**51H94**
51H84C	**57H94**
57H84	**51HX94**
57H84C	**57HX94**
65H14	**65H94**
65H84	**65HX94**


Start.
Lift the plug on connector PH001 on the Scan Converter/ Digital Convergence Module, U001.
After applying power, does the set run?
Yes
Suspect the Scan Converter/ Digital Convergence Module, U001.
No
Does resistor R7743 and resistor R7744 measure exactly 0.33 ohms?
No
Replace defective resistors.
Yes
Un-solder fuses F851 and F852 on the power/deflection board and apply power.
Does the power supply run and regulate at 120 volts, measured at F470?
No
Refer to flowchart two on page two of this guide
Yes
Suspect convergence output IC chips Q751 or Q752.

Caution:
Disconnect power from the television before adding or removing components. Always use an isolation transformer when troubleshooting.

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Shutdown Troubleshooting Guide

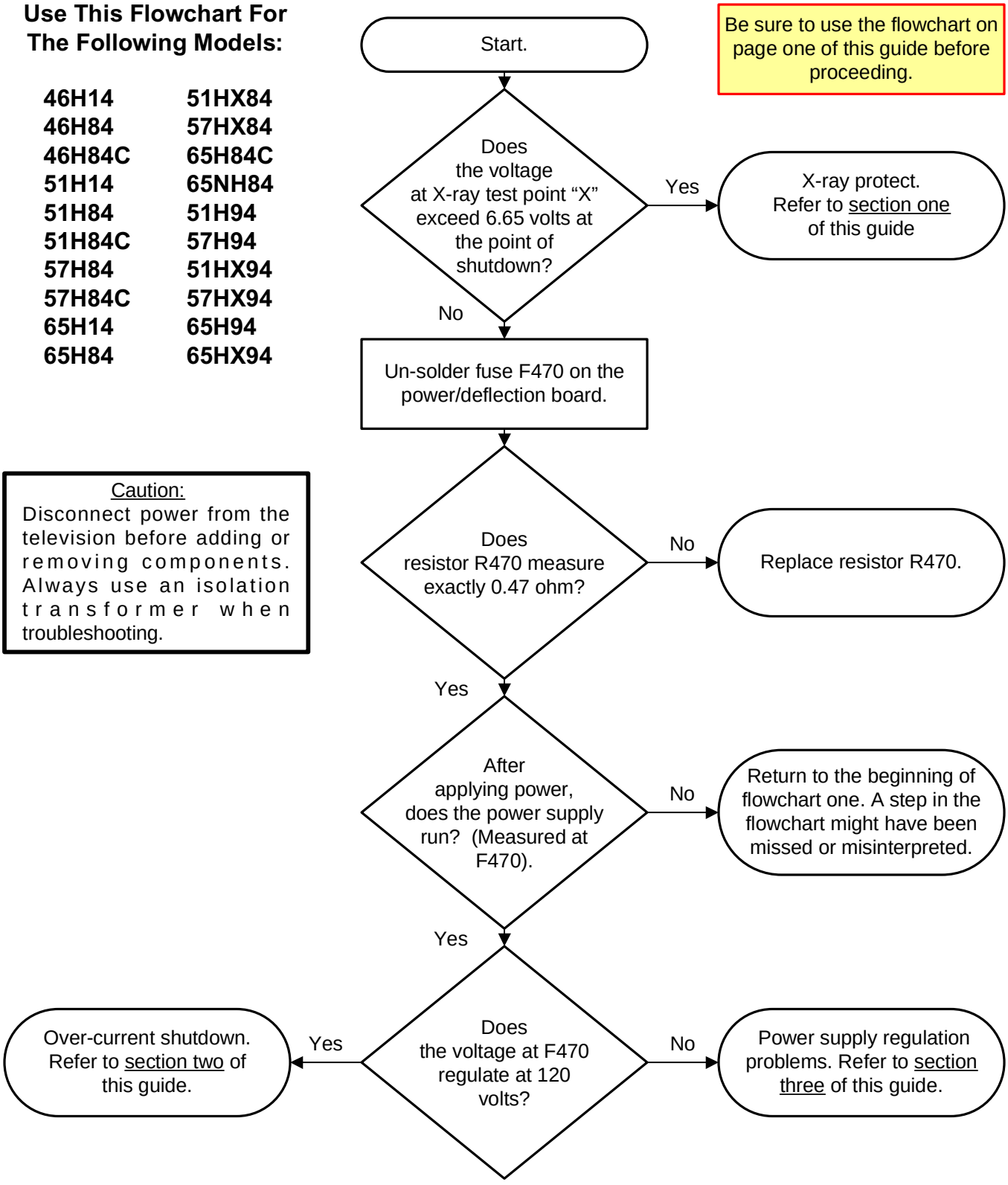
2004 HDTV Projection Models

Flowchart Two

Use This Flowchart For The Following Models:

46H14	**51HX84**
46H84	**57HX84**
46H84C	**65H84C**
51H14	**65NH84**
51H84	**51H94**
51H84C	**57H94**
57H84	**51HX94**
57H84C	**57HX94**
65H14	**65H94**
65H84	**65HX94**

Be sure to use the flowchart on page one of this guide before proceeding.


Start.
Does the voltage at X-ray test point "X" exceed 6.65 volts at the point of shutdown?
Yes
X-ray protect. Refer to section one of this guide
No
Un-solder fuse F470 on the power/deflection board.
Does resistor R470 measure exactly 0.47 ohm?
No
Replace resistor R470.
Yes
After applying power, does the power supply run? (Measured at F470).
No
Return to the beginning of flowchart one. A step in the flowchart might have been missed or misinterpreted.
Yes
Does the voltage at F470 regulate at 120 volts?
Yes
Over-current shutdown. Refer to section two of this guide.
No
Power supply regulation problems. Refer to section three of this guide.

Caution:
Disconnect power from the television before adding or removing components. Always use an isolation transformer when troubleshooting.

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Shutdown Troubleshooting Guide

2004 HDTV Projection Models

Protective shutdown in these models will be indicated by the power relay disengaging and the red power LED blinking at a half second rate. The power cord must then be unplugged and plugged back in to restore operation. The purpose of this guide is to help narrow the cause of the shutdown to a single section or circuit. Refer to the correct service manual for additional information.

The voltage test points indicated in this guide should be measured with a peak-response meter or an oscilloscope set to DC input. If a peak-response (or min-max meter) is used, set the sampling time to one millisecond. A higher sampling time could cause errors. Do not use a normal digital meter because the sampling time will be too long. Since you are attempting to measure the peak voltage just at the point of shutdown, a normal digital meter might not give correct readings.

Section One: **X-ray protection**. The high voltage is sampled at the reference pin of the CR block, Z450 (at the white wire). This voltage passes through the blue CRT board and is applied to pin 4 of connector P404 on the DEF/POW board. From there it goes to pin 10 of Q306 and exits at pin 8. Q306 is a quad op amp that is used for current buffering. The sampled voltage is then applied to the emitter of Q408 and on to Q409. If the voltage at the emitter of Q408 exceeds the reference voltage across D490, Q408 and Q409 will be turned on. This will cause the circuit of Q471, Q472 and Q473 to latch the set into shutdown.
For X-ray shutdown suspect the following components: T461, Z450, C440, C443, C444, deflection yokes and other components in the horizontal output section.

Section Two: **Over-current shutdown**. Transistor Q470 and resistor R470 are part of the over-current sensing circuit for the horizontal output section. The current for the horizontal output transistor passes through R470. The base to emitter junction of Q470 monitors the voltage drop across R470. If the current draw of the horizontal output circuit increases, the voltage drop across R470 will increase. Shutdown will occur when this voltage drop exceeds 1.5 volts. (This voltage is very difficult to measure reliably. Since the voltage is measured across the resistor and neither side of the meter is at ground potential, voltages induced into the meter leads affect the measurement).
Measure the voltage at resistor R474 on the power/deflection board. Take this measurement on the end of the resistor toward the rear of the set. If this voltage exceeds **13.2 volts** at the point of shutdown, then the set is going into over-current shutdown.
For over-current shutdown, suspect components in the horizontal deflection area such as: Q404, D461, T461, C440, C443, C444, etc.

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Shutdown Troubleshooting Guide

2004 HDTV Projection Models

Section three: **Power supply regulation.** Problems with the main power supply regulation can cause the secondary voltages to go too high. If the secondary supply voltage to the horizontal output section rises above 120 volts, the output transistor will draw excessive current and indirectly cause an over-current shutdown.
For main power supply regulation problems, suspect components such as: Q801, Q862, Q881, D880, etc.

Major Parts List:

Model	Red CRT	Green CRT	Blue CRT	Scan Converter Bd.
46H14	23078432	23078430	23078431	23148103
46H84	23078432	23078430	23078431	23148103
46H84C	23078360	23078358	23078359	23148103
51H14	23078357	23078358	23078359	23148103
51H84	23078357	23078358	23078359	23148103
51H84C	23078357	23078358	23078359	23148103
51H94	23078429	23078430	23078431	23148111
51HX84	23078357	23078358	23078359	23148103
51HX94	23078357	23078358	23078359	23148111
57H84	23078433	23078430	23078434	23148103
57H84C	23078361	23078358	23078362	23148103
57H94	23078361	23078358	23078362	23148111
57HX84	23078361	23078358	23078362	23148103
57HX94	23078361	23078358	23078362	23148111
65H14	23079126	23079128	23879128	23148103
65H84	23078363	23078358	23078364	23148103
65NH84	23079126	23079127	23079128	23148103

These parts are common to all models:

Anode Lead	23192972	**R470**	24322478
Deflection Yoke	23231390	**R7743**	24322338
T461, Flyback	23236816	**R7744**	24322338
Z450	24083014	**F470**	23144624
Q404	23205149	**F851**	23144714
Q751	23135048	**F852**	23144714
Q752	23135048		

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CHASSIS AND CABINET REPLACEMENT PARTS LIST

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF THIS MANUAL.

CAUTION: The international hazard symbols "⚠" in the schematic diagram and the parts list designate com-ponents which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE. Do not degrade the safety of the receiver through improper servicing.

NOTICE:
- *The part number must be used when ordering parts, in order to assist in processing, be sure to include the Model number and Description.*
- *The PC board assembly with * mark is no longer available after the end of the production.*

Model : 46H84/51H84/57H84

Capacitors	CD	:	Ceramic Disk	PF	:	Plastic Film	EL	: Electrolytic
Resistors	CF	:	Carbon Film	CC	:	Carbon Composition	MF	: Metal Film
	OMF	:	Oxide Metal Film	VR	:	Variable Resistor	FR	: Fusible Resistor

(All CD and PF capacitors are ±5%, 50V and all resistors, ±5%, 1/6W unless otherwise noted.)

Location No.	Parts No.	Description
#1:[46H84]		
#2:[51H84]		
#3:[57H84]		
CAPACITORS		
C101	24797339	ELECTROLYTIO CE04G, 50V 3.3UF M
C102	24665221	ELECTROLYTIC CE04Q, 10V 220UF M 3A
C105	24100102	CERAMIC CHIP, 50V F 1000PF Z
C106	24669479	ELECTROLYTIC, 50V 4.7UF M 3A
C107	24666221	ELECTROLYTIC 04Q, 16V 220UF M 3A
C108	24665221	ELECTROLYTIC CE04Q, 10V 220UF M 3A
C109	24100104	CERAMIC CHIP, 25V F 0.1UF Z
C110	24794101	ELECTROLYTIC, 16V 100UF M
C221	24503041	PLASTIC FILM , 63V 0.1UF J
C301	24503053	PLASTIC FILM, 63V 1UF J
C302	24669010	ELECTROLYTIC, 50V 1UF M 3A
C303	24503053	PLASTIC FILM, 63V 1UF J
C308	24567223	PLASTIC FILM, 50V 0.022UF J
C309	24109102	CERAMIC CHIP, 50V B 1000PF K
C310	24073053	ELECTROLYTIC, 25V 100UF M 3A
C311	24109103	CERAMIC CHIP, 50V B 0.01UF K
C312	24109332	CERAMIC CHIP, 50V B 3300PF K
C314	24503037	MT PLA CAP 63V 0.047UF J
C315	24073020	ELECTROLYTIC, 10V 1000UF M 3A
C320	24669101	ELECTROLYTIC, 50V 100UF M 3A
C321	24669101	ELECTROLYTIC, 50V 100UF M 3A
C323	24109473	CERAMIC CHIP, 25V B 0.047UF K
C324	24503053	PLASTIC FILM, 63V 1UF J
C325	24082057	PLASTIC FILM, 100V 0.22UF J
C327	24092730	CERAMIC CHIP, 16V B 0.1UF K
C328	24082256	PLASTIC FILM, 100V 2200PF J
C330	24073034	ELECTROLYTIC, 16V 10UF M 3A
C332	24669101	ELECTROLYTIC, 50V 100UF M 3A
C333	24082272	PLASTIC FILM, 100V 0.047UF J
C334	24109471	CERAMIC CHIP, 50V B 470PF K
C338	24666100	ELECTROLYTIC, 10V 10UF M 3A
C340	24073037	ELECTROLYTIC, 16V 47UF M 3A
C361	24092730	CERAMIC CHIP, 16V B 0.1UF K
C362	24109473	CERAMIC CHIP, 25V B 0.047UF K
C370	24669229	ELECTROLYTIC, 50V 2.2UF M 3A
C371	24092730	CERAMIC CHIP, 16V B 0.1UF K

Location No.	Parts No.	Description
C401	24214332	CERAMIC DISC, 500V B 3300PF K
C402	24214391	CERAMIC DISC, 500V B 390PF K
C405	24503041	PLASTIC FILM , 63V 0.1UF J
C412	24828124	PLASTIC FILM, 200V 0.12UF J
C415	24092484	CERAMIC DISC, 2KV B 1500PF K
C416	24676220	ELECTROLYTIC, 04Q 100V 22UF M 3A
C417	24503334	PLASTIC FILM CF92 T 250V 1R5UF J
C419	24105331	CERAMIC CHIP, 50V CH 330PF J
C420	24503041	PLASTIC FILM , 63V 0.1UF J
C422	24109102	CERAMIC CHIP, 50V B 1000PF K
⚠C423	24503252	PLASTIC FILM, 400V 0.3UF J
⚠C425	24503142	PLASTIC FILM, 400V 0.27UF J
C426	24211222	CERAMIC DISC, 2KV B 2200PFK
C432	24567333	PLASTIC FILM, 50V 33000PF J
⚠C440	24503059	PLASTIC FILM, 1800VH 1000PF H
⚠C443	24503099	PLASTIC FILM, 1800VH 4700PF H
⚠C444	24503347	PLASTIC FILM, 1800VH 3600PF H
C445	24828473	PLASTIC FILM, 200V 0.047UF J
C446	24073120	ELECTRPLYTIC, 250V 33UF, 250YXF33M
C448	24073118	ELECTROLYTIC, 160V 33UF M
C449	24214221	CERAMIC DISC, 500V B 220PF K
C450	24073057	ELECTROLYTIC, 25V 1000UF M 3A
C460	24678220	ELECTROLYTIC, 200V 22UF M
C463	24109682	CERAMIC CHIP, 50V B 6800PF K
C464	24503149	PLASTIC FILM, 250V 3.3UF
⚠C467	24820562	PLASTIC FILM, 630V 5600PF J
⚠C468	24820682	PLASTIC FILM, 630V 6800PF J
C473	24092730	CERAMIC CHIP, 16V B 0.1UF K
C481	24092784	CERAMIC CHIP CK83B 10V 0.33UF K
C482	24109822	CERAMIC CHIP, 50V B 8200PF K
C483	24105470	CERAMIC CHIP, 50V CH 47PF J
C491	24666100	ELECTROLYTIC, 10V 10UF M 3A
C496	24503049	PLASTIC FILM, 63V 0.47UF J
C497	24085022	ELEC. NONPOLAR CE04R 16V 100UF M NP 3A
C499	24666220	ELECTROLYTIC, 16V 22UF M 3A
C601	24109681	CERAMIC CHIP, 50V B 680PF K
C602	24109681	CERAMIC CHIP, 50V B 680PF K
C603	24073084	ELECTROLYTIC, 50V 4.7UF M 3A
C604	24073084	ELECTROLYTIC, 50V 4.7UF M 3A
C605	24073084	ELECTROLYTIC, 50V 4.7UF M 3A
C606	24073084	ELECTROLYTIC, 50V 4.7UF M 3A

Location No.	Parts No.	Description
C607	24073053	ELECTROLYTIC, 25V 100UF M 3A
C608	24073086	ELECTROLYTIC, 50V 10UF M 3A
C612	24073039	ELECTROLYTIC, 16V 220UF M 3A
C661	24073084	ELECTROLYTIC, 50V 4.7UF M 3A
C662	24073086	ELECTROLYTIC, 50V 10UF M 3A
C663	24073086	ELECTROLYTIC, 50V 10UF M 3A
C665	24109103	CERAMIC CHIP, 50V B 0.01UF K
C666	24073084	ELECTROLYTIC, 50V 4.7UF M 3A
C667	24794100	ELECTROLYTIC, 16V 10UF M
C680	24073073	ELECTROLYTIC, 35V 2200UF M 3A
C681	24109103	CERAMIC CHIP, 50V B 0.01UF K
C682	24073082	ELECTROLYTIC, 50V 2.2UF M 3A
C683	24795101	ELECTROLYTIC, 25V 100UF M
C684	24795470	ELECTROLYTIC 04G, 25V 47UF M
⚠C801	24503004	PLASTIC FILM, AC275V 0.47UF M
C805	24092281	CERAMIC DISC, AC250V E 4700PF
C809	24086067	ELECTROLYTIC 692Q 200V 1000UF M 3F
C810	24086067	ELECTROLYTIC 692Q 200V 1000UF M 3F
⚠C811	24092595	CERAMIC DISC, AC250V E 2200PF M
⚠C812	24092595	CERAMIC DISC, AC250V E 2200PF M
⚠C814	24092579	CERAMIC DISC, AC250V 470PF K
C840	24679220	ELECTROLYTIC, 250V 22UF M 3A
C841	24073097	ELECTROLYTIC CE04P 10V 2200UF M 3A
C842	24503041	PLASTIC FILM , 63V 0.1UF J
C843	24092333	CERAMIC DISC, 2KV 100PF K
C845	24669229	ELECTROLYTIC, 50V 2.2UF M 3A
C849	24073038	ELECTROLYTIC, 16V 100UF M 3A
C850	24073187	ELECTROLYTIC CE04P 35V 560UF M 3A
C851	24073187	ELECTROLYTIC CE04P 35V 560UF M 3A
C852	24073169	ELECTROLYTIC CE04P 25V 470UF M 3A
C853	24073169	ELECTROLYTIC CE04P 25V 470UF M 3A
C854	24667470	ELECTROLYTIC CE04Q, 25V 47UF M 3A
C860	24214103	CERAMIC DISC, 500V B 0.01UF K
C862	24092341	CERAMIC DISC, 2KV R 470PF K
C863	24503045	PLASTIC FILM, 63V 0.22UF J
C866	24503053	PLASTIC FILM, 63V 1UF J
C867	24591472	PLASTIC FILM, 50V 4700PF J
C868	24669470	ELECTROLYTIC, 50V 47UF M 3A
C869	24678229	ELECTROLYTIC, 200V 2.2UF M 3A
C870	24503565	PLASTIC FILM CQ32 T 800V 100000PF H
C871	24092343	CERAMIC DISC, 2KV 680PF K
C873	24503045	PLASTIC FILM, 63V 0.22UF J
C874	24092337	CERAMIC DISC, 2KV 220PF K
C876	24503049	PLASTIC FILM, 63V 0.47UF J
C877	24092344	CERAMIC DISC, 2KV 820PF K
C879	24214102	CERAMIC DISC, 500V B 1000PF K
C880	24092339	CERAMIC DISC, 2KV 330PF K
C881	24092339	CERAMIC DISC, 2KV 330PF K
C884	24086916	ELECTROLYTIC, 160V 330UF M 3D
C885	24668102	ELECTROLYTIC, 35V 1000UF M 3A
C888	24503045	PLASTIC FILM, 63V 0.22UF J
C891	24073155	ELECTROLYTIC CE04P 16V 1000UF M 3A
C892	24073155	ELECTROLYTIC CE04P 16V 1000UF M 3A
C893	24073141	ELECTROLYTIC CE04P 10V 1000UF M 3A
C898	24092730	CERAMIC CHIP, 16V B 0.1UF K
C901	24211102	CERAMIC DISC, 2KV B 1000PF K
C902	24794101	ELECTROLYTIC, 16V 100UF M
C903	24232103	CERAMIC DISC, 50V F 0.01UF Z
C904	24109471	CERAMIC CHIP, 50V B 470PF K
C906	24679220	ELECTROLYTIC, 250V 22UF M 3A
C907	24214101	CERAMIC DISC, 500V B 100PF K
C911	24211102	CERAMIC DISC, 2KV B 1000PF K
C912	24794101	ELECTROLYTIC, 16V 100UF M
C913	24232103	CERAMIC DISC, 50V F 0.01UF Z
C914	24109471	CERAMIC CHIP, 50V B 470PF K
C915	24679220	ELECTROLYTIC, 250V 22UF M 3A

Location No.	Parts No.	Description
C917	24214101	CERAMIC DISC, 500V B 100PF K
C921	24211102	CERAMIC DISC, 2KV B 1000PF K
C922	24794101	ELECTROLYTIC, 16V 100UF M
C923	24109471	CERAMIC CHIP, 50V B 470PF K
C924	24232103	CERAMIC DISC, 50V F 0.01UF Z
C925	24679220	ELECTROLYTIC, 250V 22UF M 3A
C926	24214101	CERAMIC DISC, 500V B 100PF K
C934	24092731	CERAMIC CHIP, 16V B 1UF K
C944	24092731	CERAMIC CHIP, 16V B 1UF K
C954	24092731	CERAMIC CHIP, 16V B 1UF K
C961	24763101	ELECTROLYTIC, 16V 100UF M
C962	24203100	ELECTORLYTIC, 16V 10UF M 7L 3A
C4430	24073034	ELECTROLYTIC, 16V 10UF M 3A
C7101	24797470	ELECTROLYTIC 04G, 50V 47UF M
C7102	24109103	CERAMIC CHIP, 50V B 0.01UF K
C7103	24206479	ELECTROLYTIC, 50V 4.7UF M 7L 3A
C7104	24108330	CERAMIC CHIP, 50V SL 33PF J
C7105	24092730	CERAMIC CHIP, 16V B 0.1UF K
C7106	24797470	ELECTROLYTIC 04G, 50V 47UF M
C7107	24790470	ELECTROLYTIC, 160V 47UF M
C7108	24214472	CERAMIC DISC, 500V B 4700PF K
C7109	24214472	CERAMIC DISC, 500V B 4700PF K
C7110	24666470	ELECTORLYTIC CE04Q, 16V 47UF M 3A
C7111	24666470	ELECTORLYTIC CE04Q, 16V 47UF M 3A
C7112	24435560	CERAMIC DISC, 500V SL 56PF J
C7113	24790100	ELECTROLYTIC, 160V 10UF M
C7114	24092730	CERAMIC CHIP, 16V B 0.1UF K
C7701	24503047	PLASTIC FILM, 63V 0.33UF J
C7704	24073053	ELECTROLYTIC, 25V 100UF M 3A
C7705	24073037	ELECTROLYTIC, 16V 47UF M 3A
C7706	24503047	PLASTIC FILM, 63V 0.33UF J
C7722	24105331	CERAMIC CHIP, 50V CH 330PF J
C7724	24073091	ELECTROLYTIC, 50V 220UF M 3A
C7725	24073091	ELECTROLYTIC, 50V 220UF M 3A
C7727	24105331	CERAMIC CHIP, 50V CH 330PF J
C7730	24105331	CERAMIC CHIP, 50V CH 330PF J
C7733	24105331	CERAMIC CHIP, 50V CH 330PF J
C7735	24073091	ELECTROLYTIC, 50V 220UF M 3A
C7736	24073091	ELECTROLYTIC, 50V 220UF M 3A
C7738	24105331	CERAMIC CHIP, 50V CH 330PF J
C7741	24105331	CERAMIC CHIP, 50V CH 330PF J
C7750	24073015	ELECTROLYTIC, 10V 47UF M 3A
C7751	24073089	ELECTROLYTIC, 50V 47UF M 3A
C7752	24073089	ELECTROLYTIC, 50V 47UF M 3A
C7753	24073093	ELECTROLYTIC, 50V 470UF M 3A
C7761	24073015	ELECTROLYTIC, 10V 47UF M 3A
C7762	24073015	ELECTROLYTIC, 10V 47UF M 3A
C7765	24667220	ELECTROLYTIC, 25V 22UF M 3A
C7784	24667220	ELECTROLYTIC, 25V 22UF M 3A
C7785	24092730	CERAMIC CHIP, 16V B 0.1UF K
C7786	24092730	CERAMIC CHIP, 16V B 0.1UF K
C7800	24666220	ELECTROLYTIC, 16V 22UF M 3A
CB01	24794470	ELECTROLYTIC, 16V 47UF M
CV14	24212102	CERAMIC DISC, 50V B 1000PF K
CV27	24762471	ELECTROLYTIC, 04G 10V 470UF M
CV29	24763101	ELECTROLYTIC, 16V 100UF M
CV30	24232103	CERAMIC DISC, 50V F 0.01UF Z
CV38	24212102	CERAMIC DISC, 50V B 1000PF K
CV39	24212102	CERAMIC DISC, 50V B 1000PF K
CY102	24665221	ELECTROLYTIC CE04Q, 10V 220UF M 3A
CY105	24100102	CERAMIC CHIP, 50V F 1000PF Z
CY160	24815393	CERAMIC CHIP, 50V B 39000PF K

Location No.		Parts No.	Description
RESISTORS			
R101		24382223	OXIDE METAL FILM, 1W 22K OHM J
R150		24011332	CHIP, METAL FILM, 1/20W 3.3K OHM J
R151		24011562	CHIP, METAL FILM, 1/20W 5.6K OHM J
R152		24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R173		24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R174	#2,#3	24011273	CHIP, METAL FILM, 1/20W 27K OHM J
	#1	24011273	CHIP, 1/20W 27K OHM J
R240		24367153	CARBON FILM, 1/6W 15K OHM G
R241		24367183	CARBON FILM, 1/6W 18K OHM G
R242		24367183	CARBON FILM, 1/6W 18K OHM G
R243		24367273	CARBON FILM, 1/6W 27K OHM G
R244		24366124	CARBON FILM, 1/6W 120K OHM J
R245		24366472	CARBON FILM, 1/6W 4.7K OHM J
R246		24366472	CARBON FILM, 1/6W 4.7K OHM J
R247		24366102	CARBON FILM, 1/6W 1K OHM J
R249		24366104	CARBON FILM, 1/6W 100K OHM J
R264		24366750	CARBON FILM, 1/6W 75 OHM J
R265		24366750	CARBON FILM, 1/6W 75 OHM J
R266		24366750	CARBON FILM, 1/6W 75 OHM J
R286		24366750	CARBON FILM, 1/6W 75 OHM J
R287		24366750	CARBON FILM, 1/6W 75 OHM J
R288		24366750	CARBON FILM, 1/6W 75 OHM J
R302		24366101	CARBON FILM, 1/6W 100 OHM J
R305		24322109	OXIDE METAL FILM, 1W 1 OHM J
R306		24011822	CHIP, METAL FILM, 1/20W 8.2K OHM J
R307		24011101	CHIP, METAL FILM, 1/20W 100 OHM J
R308		24011101	CHIP, METAL FILM, 1/20W 100 OHM J
R311		24366563	CARBON FILM, 1/6W 56K OHM J
R312		24011123	CHIP, METAL FILM, 1/20W 12K OHM J
R313		24011102	CHIP, METAL FILM, 1/20W 1K OHM J
R314		24011473	CHIP, METAL FILM, 1/20W 47K OHM J
R315		24011681	CHIP, METAL FILM, 1/20W 680 OHM J
R321		24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
R322		24011101	CHIP, METAL FILM, 1/20W 100 OHM J
R325		24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
R330		24000633	METAL FILM, 1/4W 10K OHM F
R331		24000633	METAL FILM, 1/4W 10K OHM F
R334		24011102	CHIP, METAL FILM, 1/20W 1K OHM J
R335		24011102	CHIP, METAL FILM, 1/20W 1K OHM J
R336		24011102	CHIP, METAL FILM, 1/20W 1K OHM J
R337		24321129	OXIDE METAL FILM, 1/2W 1.2 OHM J
R338		24011153	CHIP, METAL FILM, 1/2OW 15K OHM J
R340		24366103	CARBON FILM, 1/6W 10K OHM J
R341		24011183	CHIP, METAL FILM, 1/20W 18K OHM J
R343		24011102	CHIP, METAL FILM, 1/20W 1K OHM J
R344		24382151	OXIDE METAL FILM, 1W 150 OHM J
R345		24000445	CHIP JUMPER, 1608TYPE
R346		24382391	OXIDE METAL FILM, 1W 390 OHM J
R348		24011473	CHIP, METAL FILM, 1/20W 47K OHM J
R349	#2,#3	24011392	CHIP, METAL FILM, 1/20W 3.9K OHM J
	#1	24011392	CHIP, 1/20W 3.9K OHM J
R350		24011123	CHIP, METAL FILM, 1/20W 12K OHM J
R355		24366103	CARBON FILM, 1/6W 10K OHM J
R360		24011562	CHIP, METAL FILM, 1/20W 5.6K OHM J
R361		24011104	CHIP, METAL FILM, 1/20W 100K OHM J
R362		24011473	CHIP, METAL FILM, 1/20W 47K OHM J
R363		24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R364		24011331	CHIP, METAL FILM, 1/20W 330 OHM J
R365		24011682	CHIP, METAL FILM, 1/20W 6.8K OHM J
R366		24366222	CARBON FILM, 1/6W 2.2K OHM J
R367	#2,#3	24011392	CHIP, METAL FILM, 1/20W 3.9K OHM J
	#1	24011392	CHIP, 1/20W 3.9K OHM J
R369		24366103	CARBON FILM, 1/6W 10K OHM J
R370		24366102	CARBON FILM, 1/6W 1K OHM J
R371		24011823	CHIP, METAL FILM, 1/20W 82K OHM J

Location No.	Parts No.	Description
R372	24011332	CHIP, METAL FILM, 1/20W 3.3K OHM J
R373	24011823	CHIP, METAL FILM, 1/20W 82K OHM J
R374	24011104	CHIP, METAL FILM, 1/20W 100K OHM J
R375	24011153	CHIP, METAL FILM, 1/2OW 15K OHM J
R376	24011333	CHIP, METAL FILM, 1/20W 33K OHM J
R378	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R390	24382561	OXIDE METAL FILM, 1W 560 OHM J
R391	24382561	OXIDE METAL FILM, 1W 560 OHM J
R392	24382561	OXIDE METAL FILM, 1W 560 OHM J
R403	24553101	OXIDE METAL FILM, 1W 100 OHM J
R404	24011182	CHIP, METAL FILM, 1/20W 1.8K OHM J
R405	24366101	CARBON FILM, 1/6W 100 OHM J
R406	24382682	OXIDE METAL FILM, 1W 6.8K OHM J
R407	24381100	OXIDE METAL FILM, 1/2W 10 OHM J
R409	24555220	OXIDE METAL FILM, 3W 22 OHM J
R410	24555220	OXIDE METAL FILM, 3W 22 OHM J
R411	24323229	OXIDE METAL FILM, 2W 2.2 OHM J
R412	24383153	OXIDE METAL FILM, 2W 15K OHM J
R413	24366101	CARBON FILM, 1/6W 100 OHM J
R414	24019259	FUSIBLE, 1/4W 27 OHM G
R415	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
R416	24383151	OXIDE METAL FILM, 2W 150 OHM J
R417	24366222	CARBON FILM, 1/6W 2.2K OHM J
R418	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R419	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R420	24366103	CARBON FILM, 1/6W 10K OHM J
R421	24366223	CARBON FILM, 1/6W 22K OHM J
R422	24011223	CHIP, METAL FILM, 1/20W 22K OHM J
R423	24942102	CARBON COMPOSITION, 1/2W 1K OHM J
R424	24376104	CARBON FILM, 1/2W 10OK OHM J
R425	24376104	CARBON FILM, 1/2W 10OK OHM J
R426	24366101	CARBON FILM, 1/6W 100 OHM J
R427	24011101	CHIP, METAL FILM, 1/20W 100 OHM J
R428	24377224	CARBON FILM, 1W 220K OHM J
R429	24942102	CARBON COMPOSITION, 1/2W 1K OHM J
R431	24383102	OXIDE METAL FILM, 2W 1K OHM J
R432	24376274	CARBON FILM, 1/2W 270K OHM J
R433	24376274	CARBON FILM, 1/2W 270K OHM J
R434	24376274	CARBON FILM, 1/2W 270K OHM J
R435	24366332	CARBON FILM, 1/6W 3.3K OHM J
R436	24366473	CARBON FILM, 1/6W 47K OHM J
R437	24011223	CHIP, METAL FILM, 1/20W 22K OHM J
R438	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
R439	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R440	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R441	24533331	FUSIBLE, 2W 330 OHM J
R443	24310109	OXIDE METAL FILM, 1/2W 1 OHM J
R444	24322398	OXIDE METAL FILM, 1W 0.39 OHM J
R446	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R447	24382473	OXIDE METAL FILM, 1W 47K OHM J
R448	24366562	CARBON FILM, 1/6W 5.6K OHM J
R449	24366152	CARBON FILM, 1/6W 1.5K OHM J
R466	24366433	CARBON FILM, 1/6W 43K OHM J
R467	24011221	CHIP, METAL FILM, 1/20W 220 OHM J
R469	24011101	CHIP, METAL FILM, 1/20W 100 OHM J
R470	24322478	OXIDE METAL FILM, 1W 0.47 OHM J
R471	24366224	CARBON FILM, 1/6W 220K OHM J
R472	24011101	CHIP, METAL FILM, 1/20W 100 OHM J
R473	24011223	CHIP, METAL FILM, 1/20W 22K OHM J
R474	24376393	CARBON FILM, 1/2W 39K OHM J
R475	24366101	CARBON FILM, 1/6W 100 OHM J
R476	24011471	CHIP, METAL FILM, 1/20W 470 OHM J
⚠ R477	24998331	CHIP, METAL FILM, 1/16W 330 OHM D
R478	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
R480	24011473	CHIP, METAL FILM, 1/20W 47K OHM J
R481	24366103	CARBON FILM, 1/6W 10K OHM J

Location No.		Parts No.	Description
R482		24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R483		24000445	CHIP JUMPER, 1608TYPE
R485		24011681	CHIP, METAL FILM, 1/20W 680 OHM J
R486		24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
R487		24552271	OXIDE METAL FILM, 1/2W 270 OHM J
R488		24552151	OXIDE METAL FILM, 1/2W 150 OHM J
R489		24011102	CHIP, METAL FILM, 1/20W 1K OHM J
R490		24552331	OXIDE METAL FILM, 1/2W 330 OHM J
R491		24011222	CHIP, METAL FILM, 1/20W 2.2K OHM J
⚠ R492		24998102	CHIP, 1/16W 1K OHM
⚠ R493		24998391	CHIP, 1/16W 390 OHM
⚠ R494		24998471	CHIP, 1/16W 470 OHM
R495		24011333	CHIP, METAL FILM, 1/20W 33K OHM J
R496		24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R497		24011100	CHIP, METAL FILM, 1/20W 10 OHM J
R498		24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R499		24011102	CHIP, METAL FILM, 1/20W 1K OHM J
R513		24366101	CARBON FILM, 1/6W 100 OHM J
R515		24366103	CARBON FILM, 1/6W 10K OHM J
R601		24011822	CHIP, METAL FILM, 1/20W 8.2K OHM J
R602		24011822	CHIP, METAL FILM, 1/20W 8.2K OHM J
R603		24011102	CHIP, METAL FILM, 1/20W 1K OHM J
R604		24011102	CHIP, METAL FILM, 1/20W 1K OHM J
R609		24011563	CHIP, METAL FILM, 1/20W 56K OHM J
R610	#2,#3	24011273	CHIP, METAL FILM, 1/20W 27K OHM J
	#1	24011273	CHIP, 1/20W 27K OHM J
R611		24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R612		24011222	CHIP, METAL FILM, 1/20W 2.2K OHM J
R613		24011223	CHIP, METAL FILM, 1/20W 22K OHM J
R614		24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R615		24011104	CHIP, METAL FILM, 1/20W 100K OHM J
R616		24011822	CHIP, METAL FILM, 1/20W 8.2K OHM J
R626		24011223	CHIP, METAL FILM, 1/20W 22K OHM J
R627		24011223	CHIP, METAL FILM, 1/20W 22K OHM J
R661		24011102	CHIP, METAL FILM, 1/20W 1K OHM J
R662		24011333	CHIP, METAL FILM, 1/20W 33K OHM J
R663		24011822	CHIP, METAL FILM, 1/20W 8.2K OHM J
R665		24011223	CHIP, METAL FILM, 1/20W 22K OHM J
R666		24011473	CHIP, METAL FILM, 1/20W 47K OHM J
R667		24011223	CHIP, METAL FILM, 1/20W 22K OHM J
R668		24011473	CHIP, METAL FILM, 1/20W 47K OHM J
R671		24011102	CHIP, METAL FILM, 1/20W 1K OHM J
R672		24011333	CHIP, METAL FILM, 1/20W 33K OHM J
R673		24011822	CHIP, METAL FILM, 1/20W 8.2K OHM J
R674		24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
R676		24011104	CHIP, METAL FILM, 1/20W 100K OHM J
R677		24011104	CHIP, METAL FILM, 1/20W 100K OHM J
R681		24011222	CHIP, METAL FILM, 1/20W 2.2K OHM J
R682		24011473	CHIP, METAL FILM, 1/20W 47K OHM J
R683		24011223	CHIP, METAL FILM, 1/20W 22K OHM J
R684		24011223	CHIP, METAL FILM, 1/20W 22K OHM J
R687		24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R688		24011224	CHIP, METAL FILM, 1/20W 220K OHM J
R693		24000445	CHIP JUMPER, 1608TYPE
R697		24553221	OXIDE METAL FILM, 1W 220 OHM J
R698		24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R699		24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R810		24007061	CERAMIC COVERED, 2W 1.8 OHM K
R818		24011471	CHIP, METAL FILM, 1/20W 470 OHM J
R819		24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R840		24552562	OXIDE METAL FILM, 1/2W 5.6K OHM J
R841		24011102	CHIP, METAL FILM, 1/20W 1K OHM J
R842		24376563	CARB0N FILM, 1/2W 56K OHM J
R843		24376563	CARB0N FILM, 1/2W 56K OHM J
R844		24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R845		24366102	CARBON FILM, 1/6W 1K OHM J

Location No.	Parts No.	Description
R849	24011101	CHIP, METAL FILM, 1/20W 100 OHM J
R854	24381150	OXIDE METAL FILM, 1/2W 15 OHM J
R860	24383473	OXIDE METAL FILM, 2W 47K OHM J
R862	24321689	OXIDE METAL FILM, 1/2W 6.8 OHM J
R864	24552102	OXIDE METAL FILM, 1/2W 1K OHM J
R865	24552390	OXIDE METAL FILM, 1/2W 39 OHM J
R866	24366472	CARBON FILM, 1/6W 4.7K OHM J
R867	24366223	CARBON FILM, 1/6W 22K OHM J
R868	24552470	OXIDE METAL FILM, 1/2W 47 OHM J
R870	24381151	OXIDE METAL FILM, 1/2W 150 OHM J
R871	24382680	OXIDE METAL FILM, 1W 68 OHM J
R873	24552100	OXIDE METAL FILM, 1/2W 10 OHM J
R874	24366150	CARBON FILM, 1/6W 15 OHM J
R881	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
R883	24381102	OXIDE METAL FILM, 1/2W 1K OHM J
R885	24366471	CARBON FILM, 1/6W 470 OHM J
R893	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
R894	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
⚠ R899	24010001	CARBON FILM, 1/2W 3.9M OHM J
R900	24000892	FUSIBLE, 1W 1.2 OHM J
R901	24366331	CARBON FILM, 1/6W 330 OHM J
R903	24552101	OXIDE METAL FILM, 1/2W 100 OHM J
R905	24872180	CHIP, 1/16W 18 OHM J
R906	24872271	CHIP, 1/16W 270 OHM J
R908	24872560	CHIP, 1/16W 56 OHM J
R909	24872270	CHIP, 1/16W 27 OHM J
R910	24322568	OXIDE METAL FILM, 1W 0.56 OHM J
R911	24366331	CARBON FILM, 1/6W 330 OHM J
R913	24552101	OXIDE METAL FILM, 1/2W 100 OHM J
R915	24872270	CHIP, 1/16W 27 OHM J
R916	24872271	CHIP, 1/16W 270 OHM J
R918	24872560	CHIP, 1/16W 56 OHM J
R919	24872180	CHIP, 1/16W 18 OHM J
R920	24366222	CARBON FILM, 1/6W 2.2K OHM J
R921	24366331	CARBON FILM, 1/6W 330 OHM J
R923	24552101	OXIDE METAL FILM, 1/2W 100 OHM J
R925	24872270	CHIP, 1/16W 27 OHM J
R926	24872271	CHIP, 1/16W 270 OHM J
R928	24872680	CHIP, 1/16W 68 OHM J
R929	24872180	CHIP, 1/16W 18 OHM J
R930	24366222	CARBON FILM, 1/6W 2.2K OHM J
R931	24568272	CERAMIC COVERED G 7W 2.7K J
R938	24366150	CARBON FILM, 1/6W 15 OHM J
R944	24568272	CERAMIC COVERED G 7W 2.7K J
R945	24366150	CARBON FILM, 1/6W 15 OHM J
R948	24366222	CARBON FILM, 1/6W 2.2K OHM J
R950	24366222	CARBON FILM, 1/6W 2.2K OHM J
R951	24568272	CERAMIC COVERED G 7W 2.7K J
R958	24366150	CARBON FILM, 1/6W 15 OHM J
R961	24872222	CHIP, 1/16W 2.2K OHM J
R962	24872182	CHIP, 1/16W 1.8K OHM J
R963	24872100	CHIP, 1/16W 10 OHM J
R964	24872332	CHIP, 1/16W 3.3K OHM J
R965	24872101	CHIP, 1/16W 100 OHM J
R966	24872122	CHIP, 1/16W 1.2K OHM J
R967	24872122	CHIP, 1/16W 1.2K OHM J
R968	24366222	CARBON FILM, 1/6W 2.2K OHM J
R969	24872122	CHIP, 1/16W 1.2K OHM J
R970	24872122	CHIP, 1/16W 1.2K OHM J
R971	24872152	CHIP, 1/16W 1.5K OHM J
R978	24366222	CARBON FILM, 1/6W 2.2K OHM J
R987	24872101	CHIP, 1/16W 100 OHM J
R988	24366222	CARBON FILM, 1/6W 2.2K OHM J
R991	24366222	CARBON FILM, 1/6W 2.2K OHM J
R992	24366222	CARBON FILM, 1/6W 2.2K OHM J
R4430	24381150	OXIDE METAL FILM, 1/2W 15 OHM J

Location No.	Parts No.	Description
R4431	24366102	CARBON FILM, 1/6W 1K OHM J
R7102	24872681	CHIP, 1/16W 680 OHM J
R7103	24872102	CHIP, 1/16W 1K OHM J
R7104	24872102	CHIP, 1/16W 1K OHM J
R7105	24871221	CHIP, 1/8W 220 OHM J
R7106	24871221	CHIP, 1/8W 220 OHM J
R7107	24872101	CHIP, 1/16W 100 OHM J
R7108	24872332	CHIP, 1/16W 3.3K OHM J
R7109	24872333	CHIP, 1/16W 33K OHM J
R7110	24872273	CHIP, 1/16W 27K OHM J
R7111	24872333	CHIP, 1/16W 33K OHM J
R7112	24872151	CHIP, 1/16W 150 OHM J
R7113	24872751	CHIP, 1/16W 750 OHM J
R7114	24872681	CHIP, 1/16W 680 OHM J
R7115	24871471	CHIP, 1/8W 470 OHM J
R7116	24871471	CHIP, 1/8W 470 OHM J
R7117	24872101	CHIP, 1/16W 100 OHM J
R7118	24872101	CHIP, 1/16W 100 OHM J
R7119	24871100	CHIP, 1/8W 10 OHM J
R7120	24871100	CHIP, 1/8W 10 OHM J
R7121	24871100	CHIP, 1/8W 10 OHM J
R7122	24871100	CHIP, 1/8W 10 OHM J
R7123	24871100	CHIP, 1/8W 10 OHM J
R7124	24871100	CHIP, 1/8W 10 OHM J
R7125	24871100	CHIP, 1/8W 10 OHM J
R7126	24871100	CHIP, 1/8W 10 OHM J
R7127	24552331	OXIDE METAL FILM, 1/2W 330 OHM J
R7128	24872751	CHIP, 1/16W 750 OHM J
R7129	24872122	CHIP, 1/16W 1.2K OHM J
R7130	24872683	CHIP, 1/16W 68K OHM J
R7131	24872683	CHIP, 1/16W 68K OHM J
R7132	24872751	CHIP, 1/16W 750 OHM J
R7133	24872122	CHIP, 1/16W 1.2K OHM J
R7134	24872102	CHIP, 1/16W 1K OHM J
R7135	24553100	OXIDE METAL FILM, 1W 10 OHM J
R7136	24321229	OXIDE METAL FILM, 1/2W 2.2 OHM J
R7137	24553100	OXIDE METAL FILM, 1W 10 OHM J
R7138	24322229	OXIDE METAL FILM, 1W 2.2 OHM J
R7139	24554221	OXIDE METAL FILM, 2W 220 OHM J
R7140	24872220	CHIP, 1/16W 22 OHM J
R7141	24872220	CHIP, 1/16W 22 OHM J
R7701 #2,#3	24011392	CHIP, METAL FILM, 1/20W 3.9K OHM J
#1	24011392	CHIP, 1/20W 3.9K OHM J
R7702	24000445	CHIP JUMPER, 1608TYPE
R7707	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
R7708	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
R7710	24383221	OXIDE METAL FILM, 2W 220 OHM J
R7711	24339189	METAL FILM 2W 1R8 J
R7712	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
R7713	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
R7715	24383221	OXIDE METAL FILM, 2W 220 OHM J
R7716	24339189	METAL FILM 2W 1R8 J
R7717	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
R7718	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
R7720	24383221	OXIDE METAL FILM, 2W 220 OHM J
R7721	24339189	METAL FILM 2W 1R8 J
R7722	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
R7723	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
R7725	24383221	OXIDE METAL FILM, 2W 220 OHM J
R7726	24339189	METAL FILM 2W 1R8 J
R7727	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
R7728	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
R7730	24383221	OXIDE METAL FILM, 2W 220 OHM J
R7731	24339189	METAL FILM 2W 1R8 J
R7732	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
R7733	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J

Location No.	Parts No.	Description
R7735	24383221	OXIDE METAL FILM, 2W 220 OHM J
R7736	24339189	METAL FILM 2W 1R8 J
R7743	24322338	OXIDE METAL FILM, 1W 0.33 OHM J
R7744	24322338	OXIDE METAL FILM, 1W 0.33 OHM J
R7745	24011101	CHIP, METAL FILM, 1/20W 100 OHM J
R7746	24011101	CHIP, METAL FILM, 1/20W 100 OHM J
R7747	24011221	CHIP, METAL FILM, 1/20W 220 OHM J
R7748	24011221	CHIP, METAL FILM, 1/20W 220 OHM J
R7749	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
R7750	24011332	CHIP, METAL FILM, 1/20W 3.3K OHM J
R7751	24011153	CHIP, METAL FILM, 1/2OW 15K OHM J
R7752	24011822	CHIP, METAL FILM, 1/20W 8.2K OHM J
R7753	24011101	CHIP, METAL FILM, 1/20W 100 OHM J
R7754	24011333	CHIP, METAL FILM, 1/20W 33K OHM J
R7755	24011153	CHIP, METAL FILM, 1/2OW 15K OHM J
R7756	24011153	CHIP, METAL FILM, 1/2OW 15K OHM J
R7757	24011681	CHIP, METAL FILM, 1/20W 680 OHM J
R7758	24011332	CHIP, METAL FILM, 1/20W 3.3K OHM J
R7760	24011682	CHIP, METAL FILM, 1/20W 6.8K OHM J
R7761	24011123	CHIP, METAL FILM, 1/20W 12K OHM J
R7762	24011682	CHIP, METAL FILM, 1/20W 6.8K OHM J
R7763	24011123	CHIP, METAL FILM, 1/20W 12K OHM J
R7765	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R7766	24366103	CARBON FILM, 1/6W 10K OHM J
R7767	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R7768	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R7769	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R7770	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R7771	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R7772	24011473	CHIP, METAL FILM, 1/20W 47K OHM J
R7773	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R7774	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R7801	24383471	OXIDE METAL FILM, 2W 470 OHM J
R7802	24383681	OXIDE METAL FILM, 2W 680 OHM J
R7880	24011221	CHIP, METAL FILM, 1/20W 220 OHM J
R7881	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
R7882	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R7883	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R7884	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R7885	24366472	CARBON FILM, 1/6W 4.7K OHM J
R7886	24011104	CHIP, METAL FILM, 1/20W 100K OHM J
R7887	24366103	CARBON FILM, 1/6W 10K OHM J
R7890	24011331	CHIP, METAL FILM, 1/20W 330 OHM J
R7891	24011331	CHIP, METAL FILM, 1/20W 330 OHM J
R7892	24366472	CARBON FILM, 1/6W 4.7K OHM J
R7893	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
R7910	24011221	CHIP, METAL FILM, 1/20W 220 OHM J
R7911	24011221	CHIP, METAL FILM, 1/20W 220 OHM J
R7912	24011101	CHIP, METAL FILM, 1/20W 100 OHM J
R7913	24011101	CHIP, METAL FILM, 1/20W 100 OHM J
R7931	24000445	CHIP JUMPER, 1608TYPE
R9501	24872101	CHIP, 1/16W 100 OHM J
R9503	24872122	CHIP, 1/16W 1.2K OHM J
R9504	24872122	CHIP, 1/16W 1.2K OHM J
R9607	24872101	CHIP, 1/16W 100 OHM J
R9608	24872122	CHIP, 1/16W 1.2K OHM J
R9609	24872122	CHIP, 1/16W 1.2K OHM J
RA71	24366273	CARBON FILM, 1/6W 27K OHM J
RA72	24366153	CARBON FILM, 1/6W 15K OHM J
RA73	24366822	CARBON FILM, 1/6W 8.2K OHM J
RA76	24366822	CARBON FILM, 1/6W 8.2K OHM J
RA77	24366153	CARBON FILM, 1/6W 15K OHM J
RA78	24366273	CARBON FILM, 1/6W 27K OHM J
RA79	24366823	CARBON FILM, 1/6W 82K OHM J
RB01	24366391	CARBON FILM, 1/6W 390 OHM J
RB04	24366473	CARBON FILM, 1/6W 47K OHM J

Location No.	Parts No.	Description
RB05	24366102	CARBON FILM, 1/6W 1K OHM J
RB15	24366471	CARBON FILM, 1/6W 470 OHM J
RB19	24366470	CARBON FILM, 1/6W 47 OHM J
RV20	24366750	CARBON FILM, 1/6W 75 OHM J
RV21	24366750	CARBON FILM, 1/6W 75 OHM J
RV22	24366750	CARBON FILM, 1/6W 75 OHM J
RV23	24366101	CARBON FILM, 1/6W 100 OHM J
RV33	24366750	CARBON FILM, 1/6W 75 OHM J
RV34	24366750	CARBON FILM, 1/6W 75 OHM J
RV35	24366750	CARBON FILM, 1/6W 75 OHM J
RV36	24366750	CARBON FILM, 1/6W 75 OHM J
RV37	24366750	CARBON FILM, 1/6W 75 OHM J
RV40	24366750	CARBON FILM, 1/6W 75 OHM J
RV61	24366101	CARBON FILM, 1/6W 100 OHM J
RV85	24366471	CARBON FILM, 1/6W 470 OHM J
RV86	24366471	CARBON FILM, 1/6W 470 OHM J
RV89	24366680	CARBON FILM, 1/6W 68 OHM J
RY160	24011471	CHIP, METAL FILM, 1/20W 470 OHM J
COIL & TRANSFORMERS		
L101	23289845	COIL, PEAKING, TRF4680AT
L103	23289844	COIL, PEAKING, TRF4470AT
L302	23248073	COIL, CHOKE, TLN3299D
L303	23248073	COIL, CHOKE, TLN3299D
L304	23103145	FERRITE CHOKE, TEM2011AA
L305	23103248	FERRITR CHOKE, TEM2014AA
L310	23289846	COIL, PEAKING, TRF4101AT
L401	23289560	COIL, PEAKING, TRF4560AF
⚠ L402	23248345	COIL, CHOKE EI24 120MMH TLN3534AH
L403	23103145	FERRITE CHOKE, TEM2011AA
L406	23248191	COIL, CHOKE, TLN3351AD
L407	23103248	FERRITR CHOKE, TEM2014AA
L408	23103248	FERRITR CHOKE, TEM2014AA
⚠ L441	23233116	COIL, LIN X22H37 5.6MMH TLN2222AH
⚠ L462	23231390	DEFLECTION YOKE, TDY707RD TDY707RD
⚠ L463	23231390	DEFLECTION YOKE, TDY707RD TDY707RD
⚠ L464	23231390	DEFLECTION YOKE, TDY707RD TDY707RD
L472	23102543	COIL, CPM29.1VM6T MAG-1136
L473	23102543	COIL, CPM29.1VM6T MAG-1136
L474	23102543	COIL, CPM29.1VM6T MAG-1136
L840	23280019	COIL, PEAKING, TRF4330AZ
L841	23103145	FERRITE CHOKE, TEM2011AA
L850	23103145	FERRITE CHOKE, TEM2011AA
L851	23103145	FERRITE CHOKE, TEM2011AA
L852	23103145	FERRITE CHOKE, TEM2011AA
L854	23103145	FERRITE CHOKE, TEM2011AA
L861	23103145	FERRITE CHOKE, TEM2011AA
L862	23103145	FERRITE CHOKE, TEM2011AA
L864	23103145	FERRITE CHOKE, TEM2011AA
L880	23103145	FERRITE CHOKE, TEM2011AA
L881	23103145	FERRITE CHOKE, TEM2011AA
L885	23248073	COIL, CHOKE, TLN3299D
L886	23103145	FERRITE CHOKE, TEM2011AA
L887	23103145	FERRITE CHOKE, TEM2011AA
L888	23248321	COIL, CHOKE 15X23H 22MMH 4.2A TLN3462AH
L891	23103145	FERRITE CHOKE, TEM2011AA
L892	23103145	FERRITE CHOKE, TEM2011AA
L893	23103145	FERRITE CHOKE, TEM2011AA
L894	23248247	COIL, CHOKE, TLN3499AH
L895	23248247	COIL, CHOKE, TLN3499AH
L896	23248247	COIL, CHOKE, TLN3499AH
L902	23289159	COIL, PEAKING, TRF41R5AF
L904	23289120	COIL, PEAKING, TRF4120AF
L905	23289689	COIL, PEAKING, TRF46R8AF
L907	23238506	COIL, PEAKING, TRF4229AJ
L911	23289220	COIL, PEAKING, TRF4220AF

Location No.	Parts No.	Description
L913	23289159	COIL, PEAKING, TRF41R5AF
L915	23289689	COIL, PEAKING, TRF46R8AF
L916	23289120	COIL, PEAKING, TRF4120AF
L917	23238506	COIL, PEAKING, TRF4229AJ
L923	23289159	COIL, PEAKING, TRF41R5AF
L924	23289120	COIL, PEAKING, TRF4120AF
L925	23289689	COIL, PEAKING, TRF46R8AF
L927	23238506	COIL, PEAKING, TRF4229AJ
L7101	23289840	COIL, PEAKING, TRF4100AT
L7102	23103894	FILTER, FERRITE BEAD, TEM2011AW
L7103	23103894	FILTER, FERRITE BEAD, TEM2011AW
L7104	23261974	COIL, FERRITE BEAD, HC5-035
L7710	23248073	COIL, CHOKE, TLN3299D
L7711	23248073	COIL, CHOKE, TLN3299D
LV13	23289100	COIL, PEAKING, TRF4100AF
LV20	23238705	COIL, PEAKING, TRF4560AJ
LV36	23289560	COIL, PEAKING, TRF4560AF
LV37	23289560	COIL, PEAKING, TRF4560AF
LY101	23248296	COIL, CHOKE
LY102	23238506	COIL, PEAKING, TRF4229AJ
LY103	23238506	COIL, PEAKING, TRF4229AJ
T400	23224386	TRANSFORMER, FOCUS, TLN2220AH
T401	23224371	TRANSFORMER, HORIZ DRIVE, TLN1080AH
T461A	23192972	ANODE CAP ASSY, TCC5609AT
T461Z	23236820	TRANSFORMER FLYBACK SERVICE TFB3094ZD
⚠ T801	23211776	COIL, LINE FILTER 37X44H 6.8MH TRF3197AH
⚠ T840	23217431	TRANSFORMER, CONVERTER, TPW3425AH
⚠ T862	23217669	TRANSFORMER, CONVERTER TPW3549AS
T865	23224392	TRANSFORMER, PULSE TLN2229AH
SEMICONDUCTORS		
Q151	23205005	TRANSISTOR, KTA2014Y
Q152	23205006	TRANSISTOR, KTC4075Y
Q172	23205006	TRANSISTOR, KTC4075Y
Q241	23114756	TRANSISTOR, 2SC2482
Q301	23319787	IC, LA7833S
Q302	23000711	IC, TA1317AN
Q305	23205005	TRANSISTOR, KTA2014Y
Q306	70119059	IC, OP AMP, TA75902P(J)
Q370	23205006	TRANSISTOR, KTC4075Y
Q371	23205005	TRANSISTOR, KTA2014Y
Q372	23205006	TRANSISTOR, KTC4075Y
Q400	23205079	TRANSISTOR, 2SC4686A
Q402	23205166	TRANSISTOR, FET, 2SK2962
Q404	23205149	TRANSISTOR, 2SC5859(FA)
Q405	23205005	TRANSISTOR, KTA2014Y
Q406	23205006	TRANSISTOR, KTC4075Y
⚠ Q408	23205005	TRANSISTOR, KTA2014Y
Q409	23205006	TRANSISTOR, KTC4075Y
Q410	23205006	TRANSISTOR, KTC4075Y
Q411	23205006	TRANSISTOR, KTC4075Y
Q420	23114756	TRANSISTOR, 2SC2482
Q425	23205031	TRANSISTOR, FET, 2SK2920
Q428	23205006	TRANSISTOR, KTC4075Y
Q470	23114541	TRANSISTOR, 2SA1320
Q471	23205006	TRANSISTOR, KTC4075Y
Q472	23205006	TRANSISTOR, KTC4075Y
Q473	23205005	TRANSISTOR, KTA2014Y
Q601	23009603	IC, BTL AUDIO AMP AN7580
Q612	23205005	TRANSISTOR, KTA2014Y
Q613	23205006	TRANSISTOR, KTC4075Y
Q614	23114497	TRANSISTOR, RN1406
Q661	23205204	TRANSISTOR, NPN VEBO=25V KTC2875B-RTK
Q662	23205204	TRANSISTOR, NPN VEBO=25V KTC2875B-RTK
Q663	23906596	IC, BA4558
Q664	23114493	TRANSISTOR, RN2404

Location No.	Parts No.	Description
Q681	23205204	TRANSISTOR, NPN VEBO=25V KTC2875B-RTK
Q682	23205204	TRANSISTOR, NPN VEBO=25V KTC2875B-RTK
Q711	23205269	TRANSISTOR, VCBO-160V IC-1.5A 2SA2005
Q712	23205270	TRANSISTOR, VCBO 160V 1.5A 2SC5511
Q751	23135048	IC, CONVERGENCE OUT STK394-250A
Q752	23135048	IC, CONVERGENCE OUT STK394-250A
Q765	23205006	TRANSISTOR, KTC4075Y
Q766	23205006	TRANSISTOR, KTC4075Y
Q767	23205006	TRANSISTOR, KTC4075Y
Q768	23205006	TRANSISTOR, KTC4075Y
Q769	23906164	IC, TA75S393F
Q782	23319894	IC, NJM79M05FA
Q784	23009188	IC, KIA7805API
Q785	70129444	IC, PST994D
Q794	23906164	IC, TA75S393F
Q795	23000044	IC, TC4066BP(N)
Q796	23205006	TRANSISTOR, KTC4075Y
Q801	23135028	IC, STR-Z4479
Q840	23906133	IC, MIP280
⚠ Q841	23009270	IC, PHOTO COUPLER, PS2581L1(D)
⚠ Q842	23009270	IC, PHOTO COUPLER, PS2581L1(D)
Q843	23205006	TRANSISTOR, KTC4075Y
Q844	23205006	TRANSISTOR, KTC4075Y
⚠ Q862	23009270	IC, PHOTO COUPLER, PS2581L1(D)
⚠ Q881	23319693	IC, SE116N, LF4
Q894	23205006	TRANSISTOR, KTC4075Y
Q901	23205159	TRANSISTOR, 2SC3942
Q902	23205165	TRANSISTOR, 2SC3950E
Q911	23205159	TRANSISTOR, 2SC3942
Q912	23205165	TRANSISTOR, 2SC3950E
Q913	23205054	TRANSISTOR, KTA1504Y
Q921	23205159	TRANSISTOR, 2SC3942
Q922	23205165	TRANSISTOR, 2SC3950E
Q961	23205057	TRANSISTOR, KTC3875Y
Q962	23205054	TRANSISTOR, KTA1504Y
Q973	23205054	TRANSISTOR, KTA1504Y
Q4430	23314164	TRANSISTOR, 2SC2236-Y(C))
Q7101	23205057	TRANSISTOR, KTC3875Y
Q7102	23205057	TRANSISTOR, KTC3875Y
Q7103	70114402	TRANSISTOR, 2SC3437-Y
Q7104	23114432	TRANSISTOR, 2SC1815-GR
Q7105	23205057	TRANSISTOR, KTC3875Y
Q7106	23205057	TRANSISTOR, KTC3875Y
Q7107	23205054	TRANSISTOR, KTA1504Y
Q7108	23205057	TRANSISTOR, KTC3875Y
Q7109	23205054	TRANSISTOR, KTA1504Y
Q7761	23205005	TRANSISTOR, KTA2014Y
Q7762	23205006	TRANSISTOR, KTC4075Y
Q7763	23205006	TRANSISTOR, KTC4075Y
Q7764	23205005	TRANSISTOR, KTA2014Y
QB01	23114528	TRANSISTOR, 2SC1740S
QH301	23900003	SENSOR, PHOTOSENOR SS-2109Y @E051Z
	23900003	SENSOR, PHOTOSENOR SS-2109Y @E052Z
	23900003	SENSOR, PHOTOSENOR SS-2109Y @E053Z
	23900003	SENSOR, PHOTOSENOR SS-2109Y @E054Z
QV48	23114528	TRANSISTOR, 2SC1740S
QY160	23205006	TRANSISTOR, KTC4075Y
D101	23316755	DIODE, ZENER, MTZJ33C
D301	23316581	DIODE, ZENER 7.51-7.89 MA8075-H, TX
D302	23357366	DIODE, FR105-B5
D303	23316726	DIODE, ZENER, MTZJ15C
D304	23316794	DIODE, SC570A
D305	23357365	DIODE, 1N4004A-B5
D306	23357365	DIODE, 1N4004A-B5
D327	23316715	DIODE, ZENER, MTZJ11A
D333	23316715	DIODE, ZENER, MTZJ11A

Location No.	Parts No.	Description
D334	23316715	DIODE, ZENER, MTZJ11A
D336	23316571	DIODE, ZENER, MA8056-M
D337	23316571	DIODE, ZENER, MA8056-M
D365	23316581	DIODE, ZENER 7.51-7.89 MA8075-H, TX
D370	23316231	DIODE, 1SS355
D401	23118056	DIODE, AG01
D402	23357366	DIODE, FR105-B5
D404	23316254	DIODE, ERC06-15
D406	23357366	DIODE, FR105-B5
D411	23316610	DIODE, ZENER CHIP 17.55-18.45V MA8180-M
D412	23118707	DIODE, RP-1H
D413	23118707	DIODE, RP-1H
D414	23357366	DIODE, FR105-B5
D415	23357366	DIODE, FR105-B5
D418	23316755	DIODE, ZENER, MTZJ33C
D419	23316231	DIODE, 1SS355
D420	23118859	DIODE, 1SS133
D421	23357366	DIODE, FR105-B5
D425	23357366	DIODE, FR105-B5
D426	23316610	DIODE, ZENER CHIP 17.55-18.45V MA8180-M
D450	23357365	DIODE, 1N4004A-B5
D461	23224366	DIODE, FMQ-3GU
D470	23316596	DIODE, ZENER CHIP 11.40-11.96V MA8120-L, TX
⚠ D490	23316574	DIODE, ZENER CHIP VZ6.05-6.36V MA8062-M
D491	23316231	DIODE, 1SS355
D492	23316591	DIODE, ZENER, MA8100-M
D505	23316747	DIODE, ZENER, MTZJ27C
D601	23316231	DIODE, 1SS355
D602	23316231	DIODE, 1SS355
D603	23316231	DIODE, 1SS355
D604	23316231	DIODE, 1SS355
D605	23316231	DIODE, 1SS355
D606	23316231	DIODE, 1SS355
D607	23316231	DIODE, 1SS355
D608	23316231	DIODE, 1SS355
D609	23316231	DIODE, 1SS355
D611	23316231	DIODE, 1SS355
D612	23316231	DIODE, 1SS355
D613	23316231	DIODE, 1SS355
D614	23316231	DIODE, 1SS355
D615	23316231	DIODE, 1SS355
D616	23316231	DIODE, 1SS355
D617	23316231	DIODE, 1SS355
D628	23316597	DIODE, ZENER, MA8120-M
D751	23357012	DIODE, 1SS244
D752	23357012	DIODE, 1SS244
D801	23316393	DIODE, VRM=600V IO=6A SIP D5SB60, 4009 F05
D840	23357207	DIODE, LN1WBA60
D841	23316572	DIODE, ZENER CHIP VZ5.66-5.95V MA8056-H
D842	23316564	DIODE, ZENER 4.45-4.69 MA8047-L, TX
D843	23357366	DIODE, FR105-B5
D844	23316571	DIODE, ZENER, MA8056-M
D845	23316231	DIODE, 1SS355
D846	23118633	DIODE, ZENER, RD3.0ES B2
D847	23118633	DIODE, ZENER, RD3.0ES B2
D848	23316231	DIODE, 1SS355
D851	23357216	DIODE, D4SBL20U
D852	23316714	DIODE, RL2Z
D853	23316714	DIODE, RL2Z
D854	23357366	DIODE, FR105-B5
D862	23357366	DIODE, FR105-B5
D864	23357366	DIODE, FR105-B5
D873	23316747	DIODE, ZENER, MTZJ27C
D875	23316688	DIODE, ZENER, MTZJ9.1C
D876	23316759	DIODE, ZENER, MTZJ36C
D878	23316686	DIODE, ZENER, MTZJ9.1A

Location No.	Parts No.	Description
D879	23316747	DIODE, ZENER, MTZJ27C
⚠D880	23316663	DIODE, ZENER, MTZJ4.3B
D881	23316231	DIODE, 1SS355
D883	23357018	DIODE, RL2
D884	23357018	DIODE, RL2
D885	23357214	DIODE, D4SBS4
D891	23357434	DIODE, VRRM=40V IO=5A TO-220F15 YG801C04RF119
D892	23357042	DIODE, FMX-12S(023-108)
D893	23357042	DIODE, FMX-12S(023-108)
D894	23316231	DIODE, 1SS355
D895	23316574	DIODE, ZENER CHIP VZ6.05-6.36V MA8062-M
⚠D899	24019485	VARISTOR, TNR10V431K
D901	23118859	DIODE, 1SS133
D906	23357012	DIODE, 1SS244
D907	23357012	DIODE, 1SS244
D908	23357012	DIODE, 1SS244
D909	23357012	DIODE, 1SS244
D912	23118859	DIODE, 1SS133
D913	23115337	DIODE, 1S1834
D916	23357012	DIODE, 1SS244
D917	23357012	DIODE, 1SS244
D918	23357012	DIODE, 1SS244
D919	23357012	DIODE, 1SS244
D921	23118859	DIODE, 1SS133
D926	23357012	DIODE, 1SS244
D927	23357012	DIODE, 1SS244
D928	23357012	DIODE, 1SS244
D929	23357012	DIODE, 1SS244
D936	23115337	DIODE, 1S1834
D940	23118859	DIODE, 1SS133
D941	23118859	DIODE, 1SS133
D942	23118859	DIODE, 1SS133
D943	23118859	DIODE, 1SS133
D944	23118859	DIODE, 1SS133
D945	23118859	DIODE, 1SS133
D962	23316574	DIODE, ZENER CHIP VZ6.05-6.36V MA8062-M
D967	23115337	DIODE, 1S1834
D4430	23357365	DIODE, 1N4004A-B5
D4431	23316593	DIODE, ZENER CHIP 10.40-10.94V MA8110-L
D7101	23118859	DIODE, 1SS133
D7102	23118859	DIODE, 1SS133
D7730	23118538	DIODE, ZENER, RD6.2ESA B2
D7731	23118538	DIODE, ZENER, RD6.2ESA B2
D7760	23316231	DIODE, 1SS355
D7761	23118520	DIODE, ZENER, RD8.2ES B2
D7762	23118520	DIODE, ZENER, RD8.2ES B2
D7763	23316231	DIODE, 1SS355
D7764	23316231	DIODE, 1SS355
D7766	23316231	DIODE, 1SS355
D7790	23316231	DIODE, 1SS355
D7791	23316231	DIODE, 1SS355
D7792	23316231	DIODE, 1SS355
D7793	23316585	DIODE, ZENER, MA8082-M
D7806	23316231	DIODE, 1SS355
DB01	23358564	DIODE, LED, SLR-56VC3FPQ
DB03	23358522	DIODE, LED, SIR-56SB3F
DH301	23316672	DIODE, ZENER, MTZJ5.6B @E051Z
	23316672	DIODE, ZENER, MTZJ5.6B @E052Z
	23316672	DIODE, ZENER, MTZJ5.6B @E053Z
	23316672	DIODE, ZENER, MTZJ5.6B @E054Z
KB01	23000852	IC, REMOTE PHOTO RECEIVER, PIC-37043TE2

Location No.	Parts No.	Description
MISCELLANEOUS		
BB10	23903022	CONNECTOR, BASE B-B 8P 2.5 JST
BB100	23368627	CONNECTOR, BRIDGE B-B 8P 2.5JST 08TM-2.5FJ-E
BB11	23903022	CONNECTOR, BASE B-B 8P 2.5 JST
BB20	23903022	CONNECTOR, BASE B-B 8P 2.5 JST
BB200	23368627	CONNECTOR, BRIDGE B-B 8P 2.5JST 08TM-2.5FJ-E
BB21	23903022	CONNECTOR, BASE B-B 8P 2.5 JST
BB60	23713014	CONNECTOR, BRIDGE PLUG 16P 1.5
BB70	23713309	PLUG , TAC-A46P-B1
D461B	72471082	SCREW, 3X10MM
E918 #1	23737007	BOLT, BOLT ASSY 50A60
#3	23737007	BOLT, BOLT ASSY 50A60
E929	23969684	TAPE, GLASS-CLOTH, W/ADHESIVE W=90 T=0.18
E948 #1	23737007	BOLT, BOLT ASSY 50A60
#3	23737007	BOLT, BOLT ASSY 50A60
E959	23969684	TAPE, GLASS-CLOTH, W/ADHESIVE W=90 T=0.18
E978 #1	23737007	BOLT, BOLT ASSY 50A60
#3	23737007	BOLT, BOLT ASSY 50A60
E989	23969684	TAPE, GLASS-CLOTH, W/ADHESIVE W=90 T=0.18
⚠F470	23144624	FUSE, AXIAL 125V 2.0A
⚠F801	23144684	FUSE, CARTRIDGE 5X20 125V 8.0A
F801A	23165433	FUSE HOLDER, 5.2 SOC
F801B	23165433	FUSE HOLDER, 5.2 SOC
⚠F840	23144704	FUSE, AXIAL 125V 200MA
⚠F850	23144712	FUSE, AXIAL 125V 3.0A
⚠F851	23144714	FUSE, AXIAL 125V 4.0A
⚠F852	23144714	FUSE, AXIAL 125V 4.0A
⚠F860	23144626	FUSE, AXIAL 125V 4.0A
⚠F885	23144715	FUSE, AXIAL 125V 5.0A
⚠F891	23144714	FUSE, AXIAL 125V 4.0A
⚠F892	23144710	FUSE, AXIAL 125V 2.0A
G101	24011151	CHIP, METAL FILM, 1/20W 150 OHM J
G102	24011151	CHIP, METAL FILM, 1/20W 150 OHM J
GJ101	24000445	CHIP JUMPER, 1608TYPE
GJ102	24000445	CHIP JUMPER, 1608TYPE
GJ105	24000445	CHIP JUMPER, 1608TYPE
GJ107	24000445	CHIP JUMPER, 1608TYPE
GJ108	24000445	CHIP JUMPER, 1608TYPE
GJ170	24000445	CHIP JUMPER, 1608TYPE
GJ911	24000445	CHIP JUMPER, 1608TYPE
GR103	24000445	CHIP JUMPER, 1608TYPE
GR31	24000445	CHIP JUMPER, 1608TYPE
GR32	24000445	CHIP JUMPER, 1608TYPE
GR601	24000445	CHIP JUMPER, 1608TYPE
H002	23148082	IF MODULE, US BUFFER 6M_TRAP MVUS51A
H003	23124087	ANTENNA SWITCH, RSU135X1, 2I3O BUNPAI US
H003A	23740989	NUT, F-CONNECTOR 2H BS
MF01	23389209	CABLE, FFC P1.25-16-200 P1.25-16-200
MF03	23389208	CABLE, FFC P1.25-29-70 P1.25-29-70
P105	23368578	CONNECTOR, PLUG 4P, 2.5MM G JST-EH, B4B-EH-F1-TV4
P404	23367069	CONNECTOR, PLUG, NP 2.5MM G JST-EH, B9B-EH-F1A
P710	23368578	CONNECTOR, PLUG 4P, 2.5MM G JST-EH, B4B-EH-F1-TV4
P711	23368578	CONNECTOR, PLUG 4P, 2.5MM G JST-EH, B4B-EH-F1-TV4
P712	23368578	CONNECTOR, PLUG 4P, 2.5MM G JST-EH, B4B-EH-F1-TV4
⚠P800	23368013	CONNECTOR, PLUG, 2P 11.88MM W VT-JST
⚠P801	23372209	POWER CORD, U/C FL 125V7A CMC042P JST
P880A	23367068	CONNECTOR, PLUG 8P, 2.5MM G JST-EH B8B-EH-F1-TV4
P880B	23367068	CONNECTOR, PLUG 8P, 2.5MM G JST-EH B8B-EH-F1-TV4
P900	23164563	CONNECTOR, PLUG 3P @E051Z
	23164563	CONNECTOR, PLUG 3P @E052Z
	23164563	CONNECTOR, PLUG 3P @E053Z
	23164563	CONNECTOR, PLUG 3P @E054Z
P913	23368578	CONNECTOR, PLUG 4P, 2.5MM G JST-EH, B4B-EH-F1-TV4
P915A	23367069	CONNECTOR, PLUG, NP 2.5MM G JST-EH, B9B-EH-F1A
P915B	23367069	CONNECTOR, PLUG, NP 2.5MM G JST-EH, B9B-EH-F1A
P917	23367069	CONNECTOR, PLUG, NP 2.5MM G JST-EH, B9B-EH-F1A

Location No.		Parts No.	Description
P918		23368578	CONNECTOR, PLUG 4P, 2.5MM G JST-EH, B4B-EH-F1-TV4
P919		23368577	CONNECTOR, PLUG, 3P 2.5MM G JST-EH, B3B-EH-F1-TV4
P920		23164965	CONNECTOR, PLUG 4P, W-P3504-#02
PB22		23368578	CONNECTOR, PLUG 4P, 2.5MM G JST-EH, B4B-EH-F1-TV4
PV01		23023132	JACK, PIN 2S6P SMK LAP5030-0111GC
PV02		23023205	JACK, PIN 10P SMK KARI2
PV03		23023211	JACK, PIN 7P SMK KARI04
PV05		23365819	JACK, 1S3P
PV60		23367070	PLUG , NP 2.5MM G JST-EH B10B-EH-F1A
Q404B		72471082	SCREW, 3X10MM
SA01		23145226	SWITCH, 1C1P, PUSH
SA02		23145226	SWITCH, 1C1P, PUSH
SA03		23145226	SWITCH, 1C1P, PUSH
SA04		23145226	SWITCH, 1C1P, PUSH
SA05		23145226	SWITCH, 1C1P, PUSH
SA06		23145226	SWITCH, 1C1P, PUSH
SA07		23145226	SWITCH, 1C1P, PUSH
SA08		23145226	SWITCH, 1C1P, PUSH
SA09		23145226	SWITCH, 1C1P, PUSH
⚠ SR81		23146577	RELAY, DLS5D1-O(M)0.25W DLS5D1-O(M)0.
⚠ SR82		23146564	RELAY, DC12V, TV5, DG-3
⚠ V901A		23903180	SOCKET, ISHM62S-WE ICE ISHM62S-WE
⚠ V902A		23903180	SOCKET, ISHM62S-WE ICE ISHM62S-WE
⚠ V903A		23903180	SOCKET, ISHM62S-WE ICE ISHM62S-WE
W661	#2,#3	23351242	SPEAKER, 160X160 8-OHM 20W SPK-1424AW
	#1	23351167	SPEAKER, SPK1390AE
W662	#2,#3	23351242	SPEAKER, 160X160 8-OHM 20W SPK-1424AW
	#1	23351167	SPEAKER, SPK1390AE
Z101		23103840	FERRITE CORE, TFE1013
Z401		23140203	SPARK GAP, 2.0-3.0KV C-010, AG20PC152F-L3N
⚠ Z410		23110841	FOCUS PACK, TPA6030
⚠ Z450		24083014	COMPOSITE PARTS, CR-BLOCK TPA5011AH
Z450A		23501755	ANODE CABLE, 400LD FBT-C
Z801		23103840	FERRITE CORE, TFE1013
ZH04		23103778	FERRITE CORE, TFE1008
ZH05		23103840	FERRITE CORE, TFE1013

PC BOARD ASSEMBLIES

E021Z	#2,#3	23761995	PC BOARD ASSY, BACK/AV 51H84 PU PD1735A1
	#1	23762482	PC BOARD ASSY, BACK/AV 46H84 PU PD1876A1
E022Z	#2,#3	23761996	PC BOARD ASSY, FRONT-CON 51H84 PU PD1735A2
	#1	23762483	PC BOARD ASSY, FRONT-CON 46H84 PU PD1876A2
E023Z	#2,#3	23761997	PC BOARD ASSY, FRONT-IN 51H84 PU PD1735A3
	#1	23762484	PC BOARD ASSY, FRONT-IN 46H84 PU PD1876A3
E024Z	#2,#3	23761998	PC BOARD ASSY, REMOTE 51H84 PU PD1735A4
	#1	23762485	PC BOARD ASSY, REMOTE 46H84 PU PD1876A4
E031Z		23761984	PC BOARD ASSY, CRT/SVM/R 51H84 PU PD1733A1
E032Z		23761985	PC BOARD ASSY, CRT/SVM/G 51H84 PU PD1733A2
E033Z		23761986	PC BOARD ASSY, CRT/SVM/B 51H84 PU PD1733A3
E034Z		23762013	PC BOARD ASSY, SVM/DIV 51H84 PU PD1733A4
E051Z		23762004	PC BOARD ASSY, CONV-SEN 51H84 PU PD0079B
E052Z		23762005	PC BOARD ASSY, CONV-SEN2 51H84 PU PD0079B2
E053Z		23762006	PC BOARD ASSY, CONV-SEN3 51H84 PU PD0079B3
E054Z		23762007	PC BOARD ASSY, CONV-SEN4 51H84 PU PD0079B4
U001		23148103	SCAN CONVERTER MODUL, MHSU11 MHSU11
U401	#1	23762135	PC BOARD ASSY, DEFPOWER 46H84 PU PD1730C
	#2	23761973	PC BOARD ASSY, DEFPOWER 51H84 PU PD1730A
	#3	23762134	PC BOARD ASSY, DEFPOWER 57H84 PU PD1730B
U601		23761975	PC BOARD ASSY, IF/AUDIO 51H84 PU PD1731A2
U711		23761974	PC BOARD ASSY, CONVER 51H84 PU PD1731A1
UV02		23148055	SCAN CONVERTER MODUL, 03DVI MHDM01

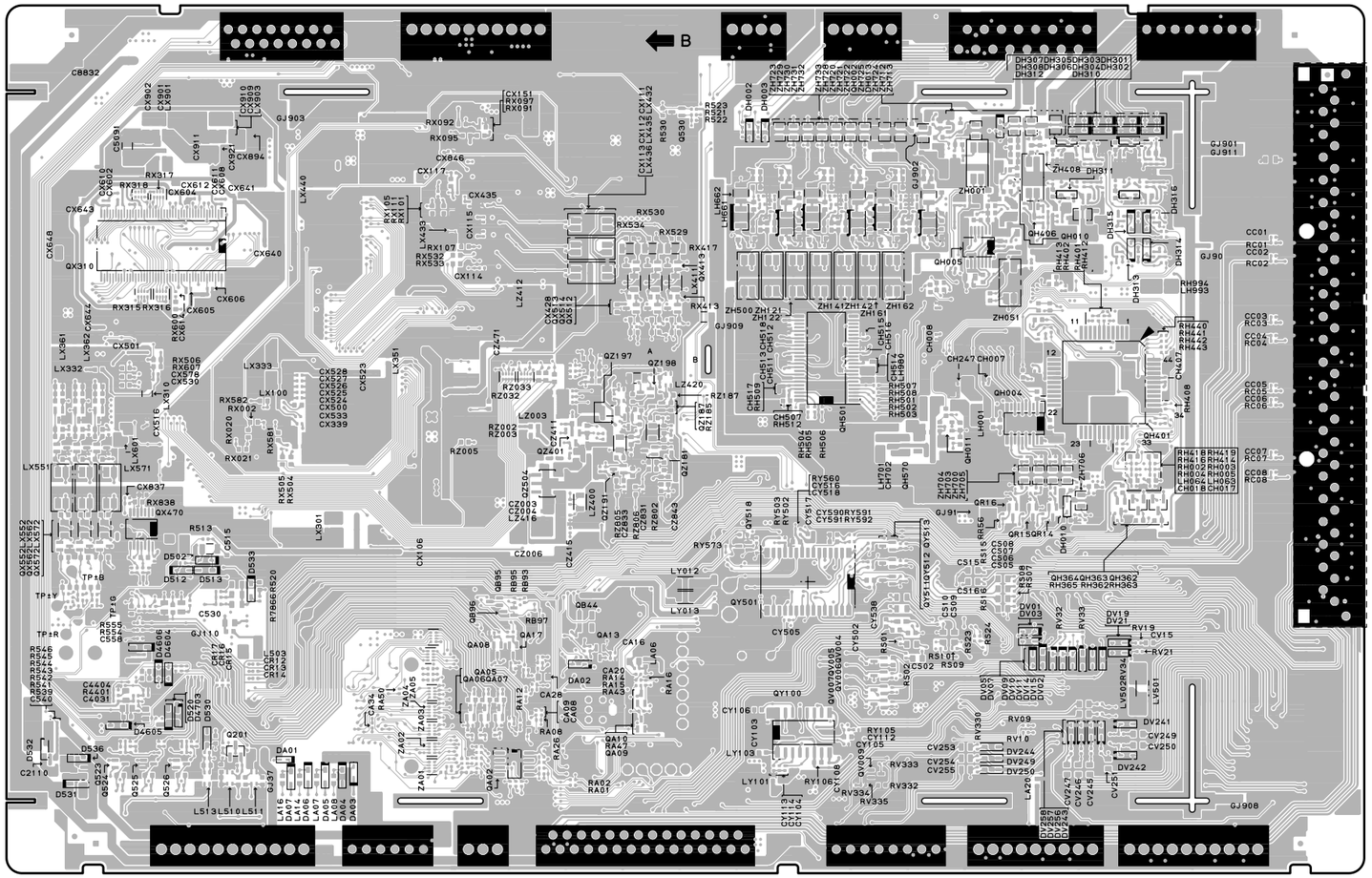
Location No.		Parts No.	Description
PICTURE TUBE			
V901R	#1	23078432	OTHER BLOCK, COUPLING R
	#2	23078357	OTHER, COUPLING R
	#3	23078433	OTHER BLOCK, COUPLING R
V902G	#1	23078430	OTHER BLOCK, COUPLING G
	#2	23078358	OTHER, COUPLING G
	#3	23078430	OTHER BLOCK, COUPLING G
V903B	#1	23078431	OTHER BLOCK, COUPLING B
	#2	23078359	OTHER, COUPLING B
	#3	23078434	OTHER BLOCK, COUPLING B
TUNER			
⚠ H001		23321482	TUNER, US181CH IIC PH 5V PANA ELA52LX5
⚠ HY01		23321480	TUNER, TIF US IIC PH 181CH 5V ENG36A18GF
ACCESSORIES			
A701	#1	23067159	CARTON, CARTON
	#2	23067099	CARTON, CARTON
	#3	23067100	CARTON, CARTON
A703	#1	23946513	PACKING, TOP PACKING
	#2	23946479	PACKING, TOP PACKING
	#3	23946481	PACKING, TOP PACKING
A707	#1	23946510	PACKING, BTM TRAY ASSY
A708	#2	23946478	PACKING, BOTTOM PACKING
	#3	23946480	PACKING, BOTTOM PACKING
A709	#2	23946483	PACKING, BOTTOM TRAY
	#3	23946187	PACKING, BASE TRAY
⚠ K912		23306497	REMOCON HAND UNIT IR, CTVUSA CT-90159
⚠ Y101		23566304	OWNERS MANUAL, ENGLISH/FRENCH 51H84
CABINET PARTS			
⚠ A001	#1	23429060	CABINET, WD CAB ASSY, 46H84
⚠	#2	23429055	CABINET, WOOD CABI SHIP 51H84
⚠	#3	23429091	CABINET, WOOD CABINET SHIP 57H84
A102	#1	23527274	GRILLE, SPK GRILLE ASSY
	#2	23527268	GRILLE, SPEAKER GRILLE 51 REG
See Note A	#3	23527269	GRILLE, SPEAKER GRILLE 57 REG
A160		23469228	CASTER, TP50H60
⚠ A201	#1	23530960	COVER, BEZEL
⚠	#1	23532713	COVER, BEZEL ASSEMBLY 46H84
⚠	#2	23530779	COVER, BEZEL
⚠	#3	23532728	COVER, BEZEL ASSEY 57H84
A202	#2,#3	23450649	PANEL, CONTROL ASSY
	#1	23450682	PANEL, CONTROL PANEL ASSEMBLY
A213	#2,#3	23428187	DOOR
	#1	23428212	DOOR
A215		23929911	PIECE, SNAP-IN GEAR DAMPER CONNON
A222		23929910	PIECE, FILTER
A223	#2,#3	23445705	BUTTON, POWER BUTTON
	#1	23445733	BUTTON, POWER BUTTON
A268	#1	23530997	COVER, BEZEL,SPEAKER
	#2	23530772	COVER, FRONT COVER
	#3	23530770	COVER, FRONT COVER
A329	#2	23433231	DECORATIVE, PIECE
	#3	23433230	DECORATIVE, PIECE
A331	#2	23929897	PIECE, POLE BOTTOM LEFT
	#3	23929899	PIECE, POLE BOTTOM LEFT
A332	#2	23929898	PIECE, POLE BOTTOM RIGHT
	#3	23929900	PIECE, POLE BOTTOM RIGHT
⚠ A401	#1	23530962	COVER, BACK COVER
⚠	#2	23530781	COVER, BACK COVER
⚠	#3	23429132	CABINET, BACK COVER ASSEY 57H84
⚠ A421		23530812	COVER, REAR BOARD
⚠ A424		23429059	CABINET, BACK BOARD 51H84
A510		23030815	SCREW, WOOD, PTD #6 X 3/4

Location No.		Parts No.	Description
A721		23943628	PLYETHLENE COVERING 46GM88T
K501	#1	23311087	SCREEN, 46KP LENTICULAR SHEET SCREEN46KP-L
	#2	23311088	SCREEN, 51KP LENTICULAR SHEET SCREEN51KP-L
	#3	23311013	SCREEN, 57KNH LENTICULAR SHEET SCREEN57KNHL
K502	#1	23311018	SCREEN, 46KN FRESNEL SHEET SCREEN46KN-F
	#2	23311016	SCREEN, 51KN FRESNEL SHEET SCREEN51KN-F
	#3	23311014	SCREEN, 57KN FRESNEL SHEET SCREEN57KN-F
K503	#1	23311094	SCREEN, PROTECTOR 46RP SCR-PRO46RP
	#2	23311019	SCREEN, PROTECTOR 51RN SCR-PRO51RN
	#3	23311862	SCREEN, PROTECTOR 57RL SCR-PRO57RL
K601	#1	23405273	MIRROR, 46W MIRROR46L
	#2	23405249	MIRROR, 51WL
	#3	23405409	MIRROR, 57WL MIRROR57WL

Note A: A102 #4 23527287 SPEAKER GRILLE 57H84R Only

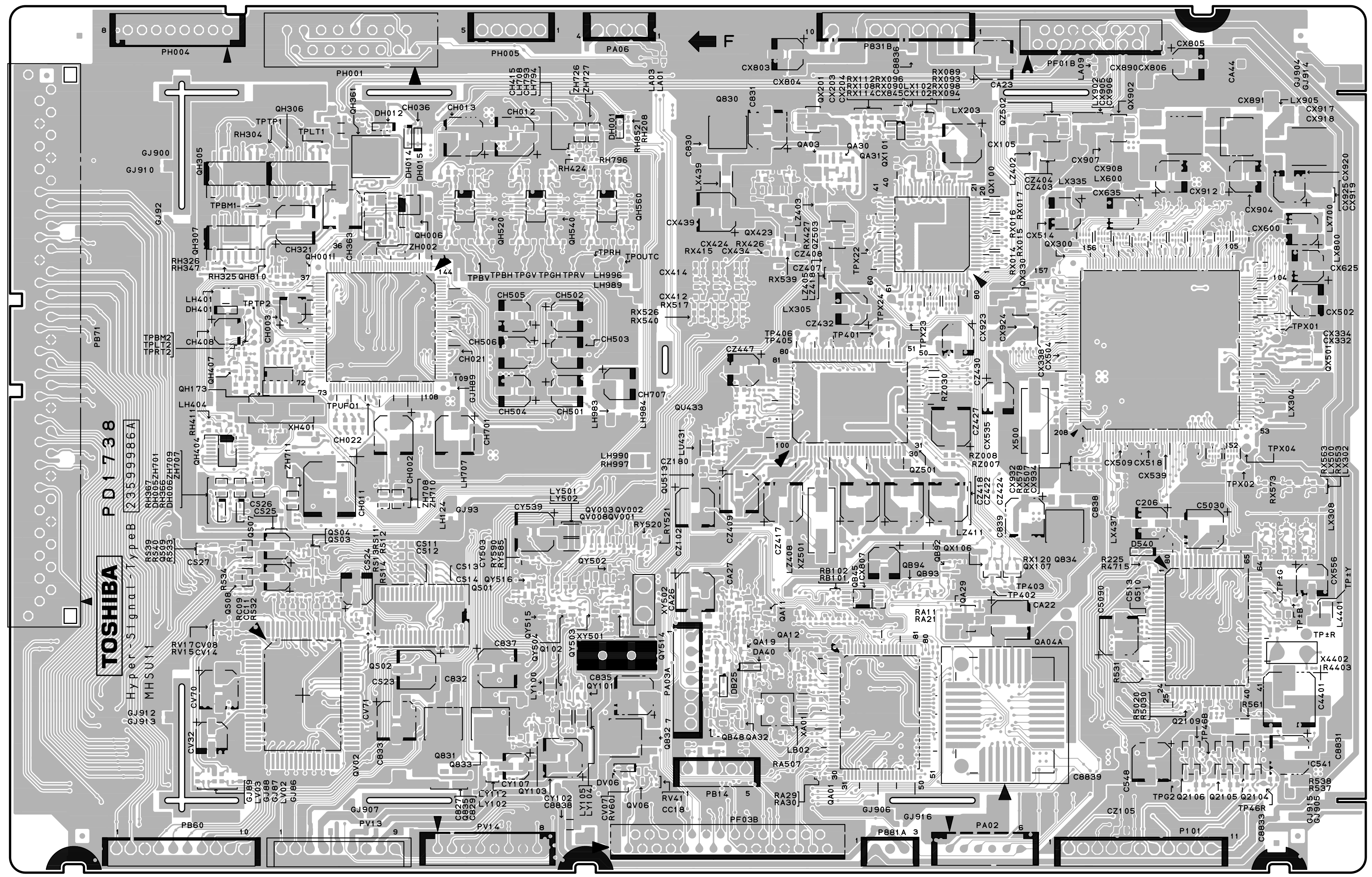
SCAN CONVERTER MODUL, MHSU11 PD1738 (U001)

BOTTOM (FOIL) SIDE



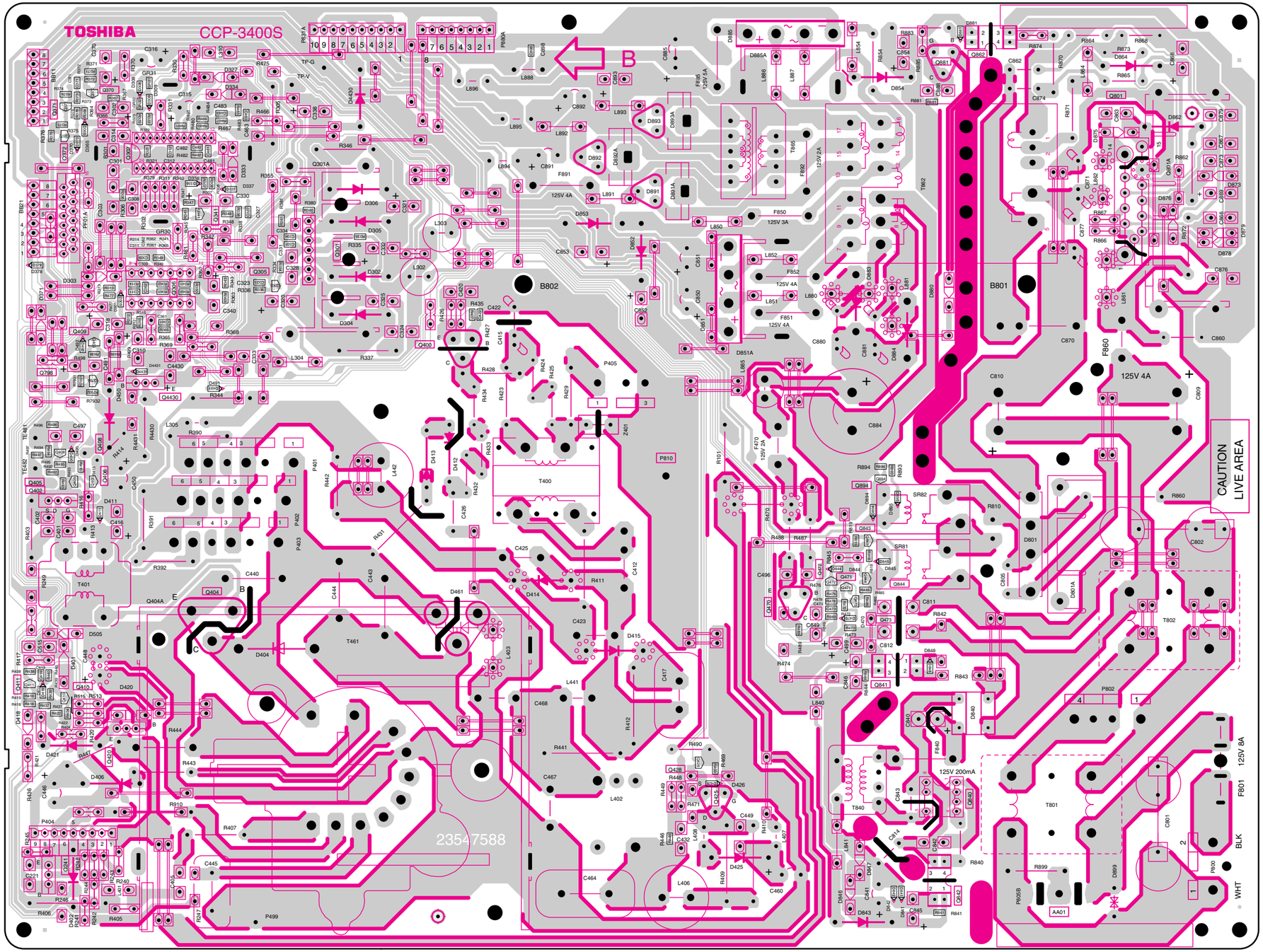
SCAN CONVERTER MODUL, MHSU11 PD1738 (U001)

TOP (COMPONENT) SIDE



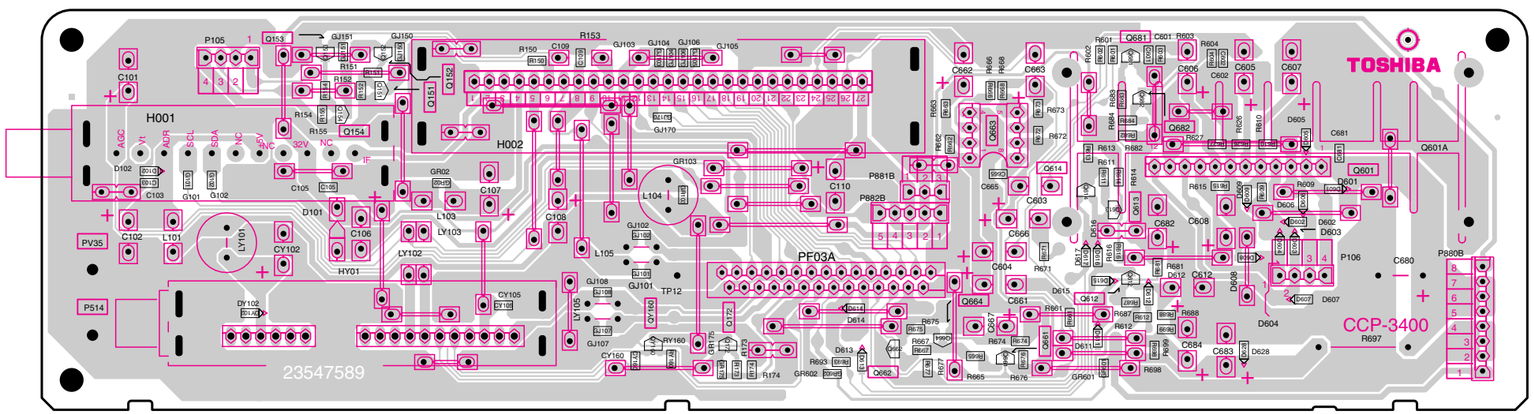
DEFPOWER BOARD (46H84:PD1730C 51H84:PD1730A 57H84:PD1730B) (U401)

BOTTOM (FOIL) SIDE



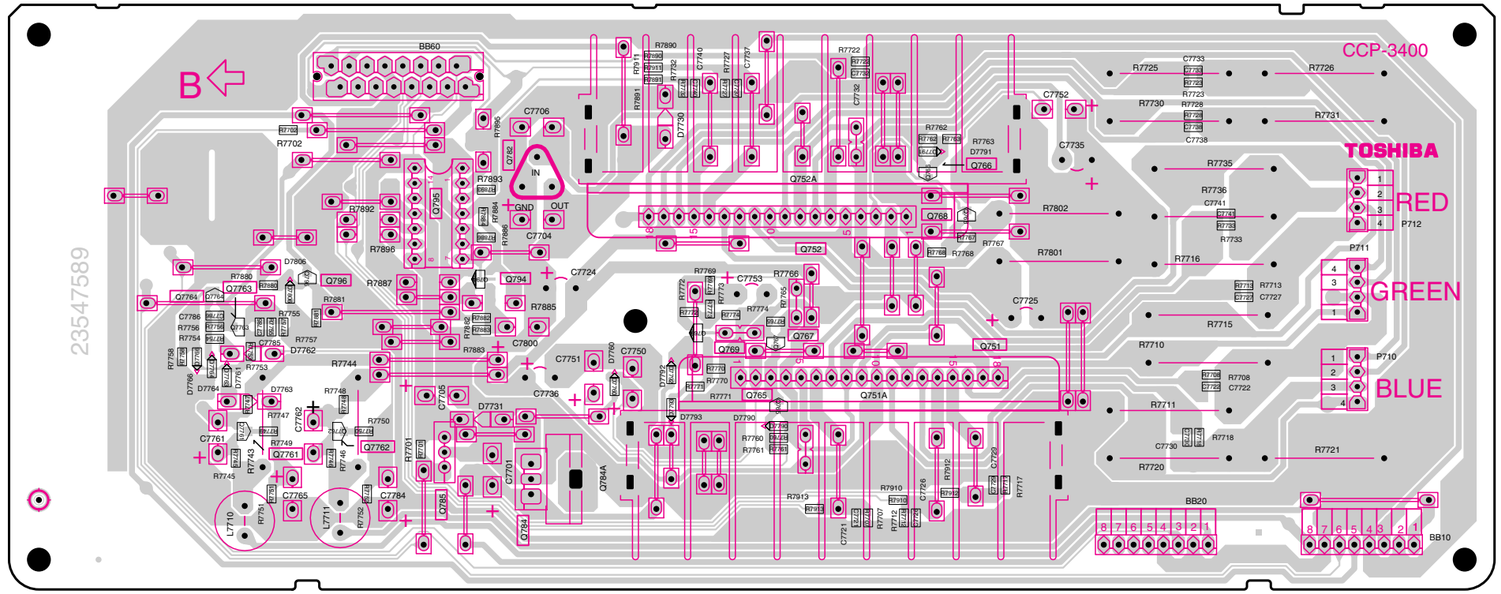
IF/AUDIO BOARD PD1731A2 (U601)

BOTTOM (FOIL) SIDE



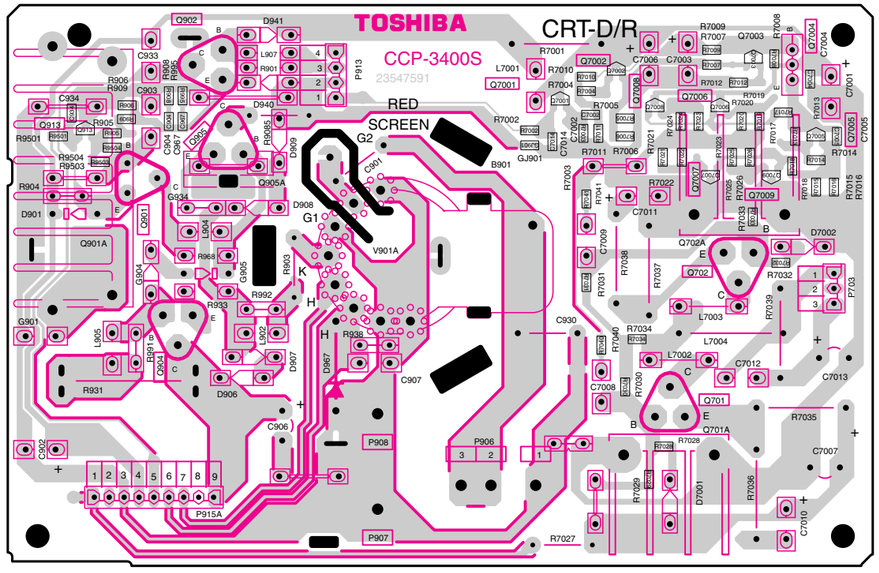
CONVER BOARD PD1731A1 (U711)

BOTTOM (FOIL) SIDE



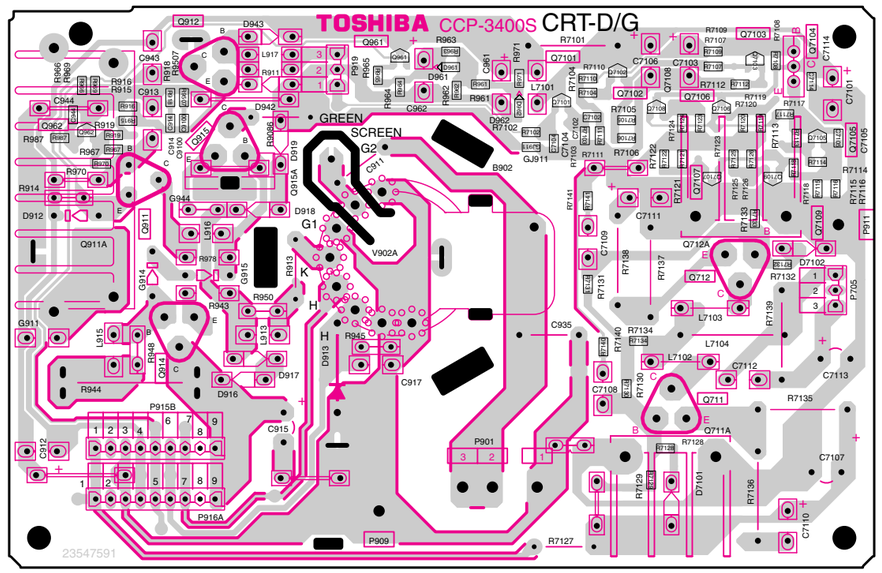
CRT/SVM/R BOARD PD1733A1 (E031Z)

BOTTOM (FOIL) SIDE



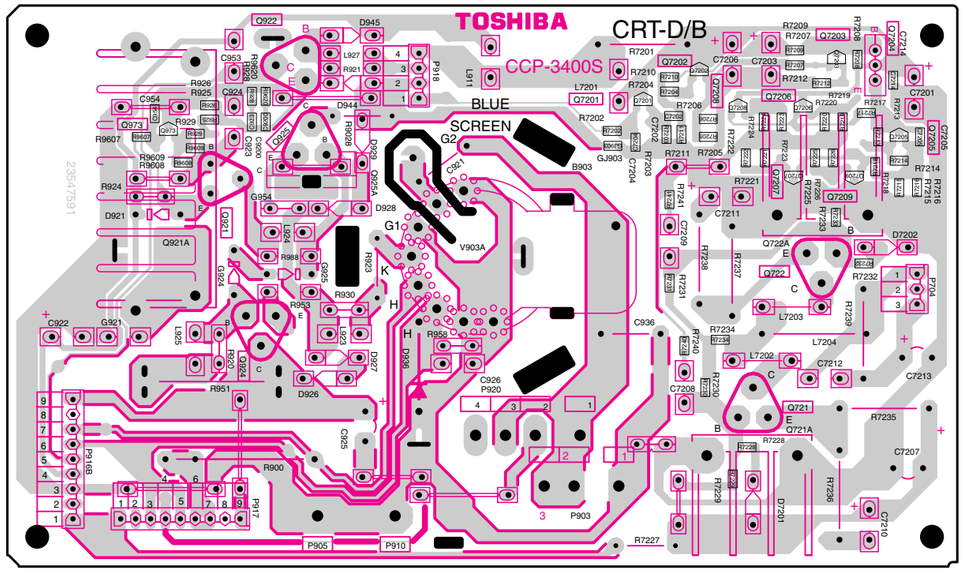
CRT/SVM/G BOARD PD1733A2 (E032Z)

BOTTOM (FOIL) SIDE



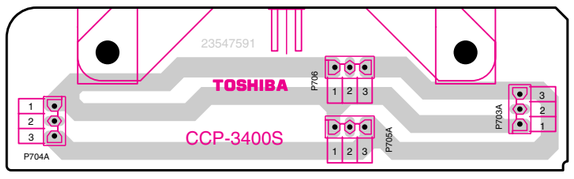
CRT/SVM/B BOARD PD1733A3 (E033Z)

BOTTOM (FOIL) SIDE



SVM/DIV BOARD PD1733A4 (E034Z)

BOTTOM (FOIL) SIDE

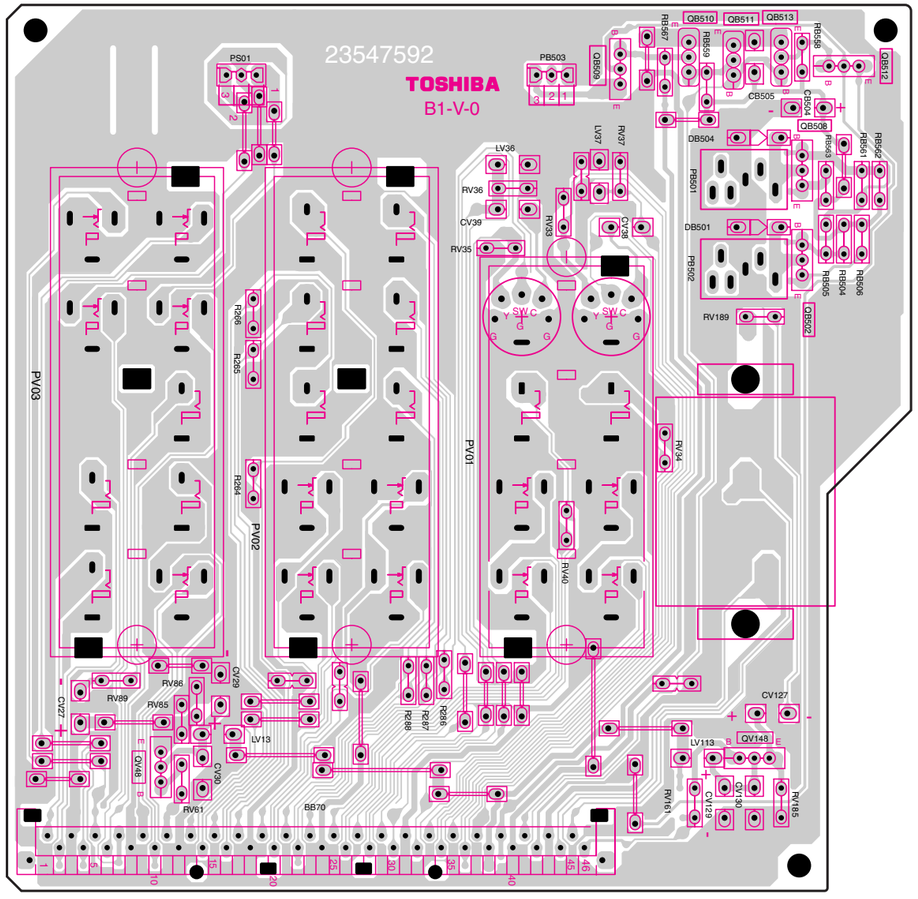


CONV-SEN BOARD PD0079

BOTTOM (FOIL) SIDE

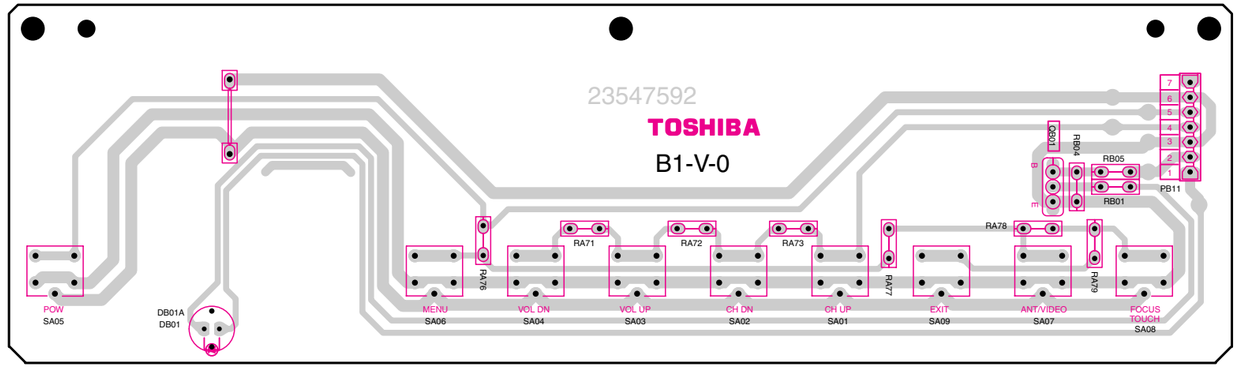
BACK/AV BOARD (51H84/57H84:PD1735A1) (E021Z)

BOTTOM (FOIL) SIDE



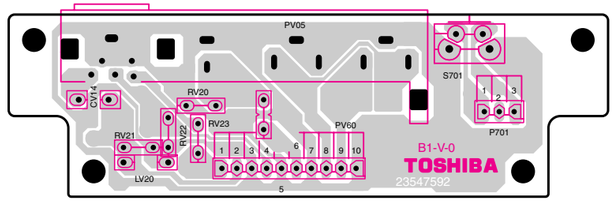
FRONT-CON BOARD (51H84/57H84:PD1735A2) (E022Z)

BOTTOM (FOIL) SIDE



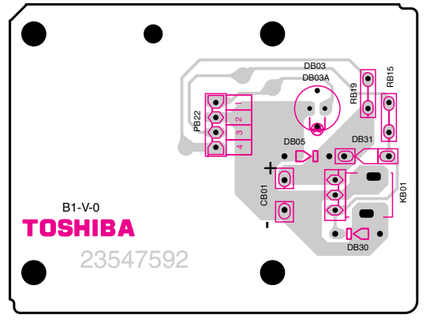
FRONT IN BOARD (51H84/57H84:PD1735A3) (E023Z)

BOTTOM (FOIL) SIDE



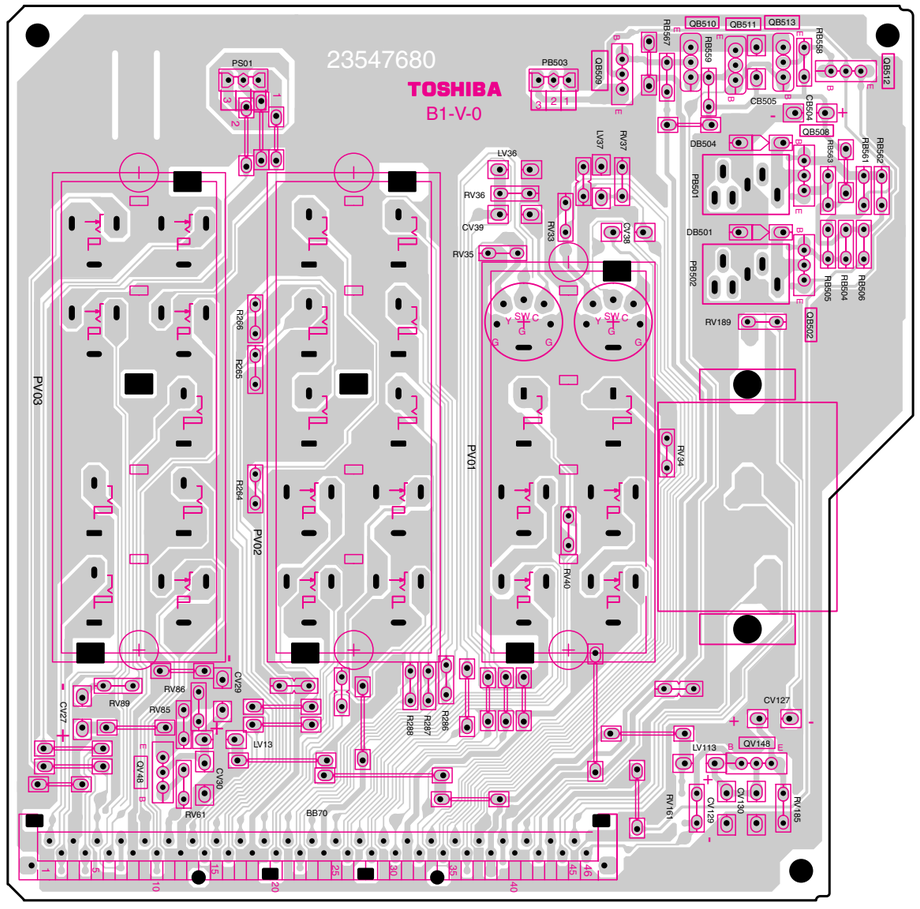
REMOTE BOARD (51H84/57H84:PD1735A4) (E024Z)

BOTTOM (FOIL) SIDE



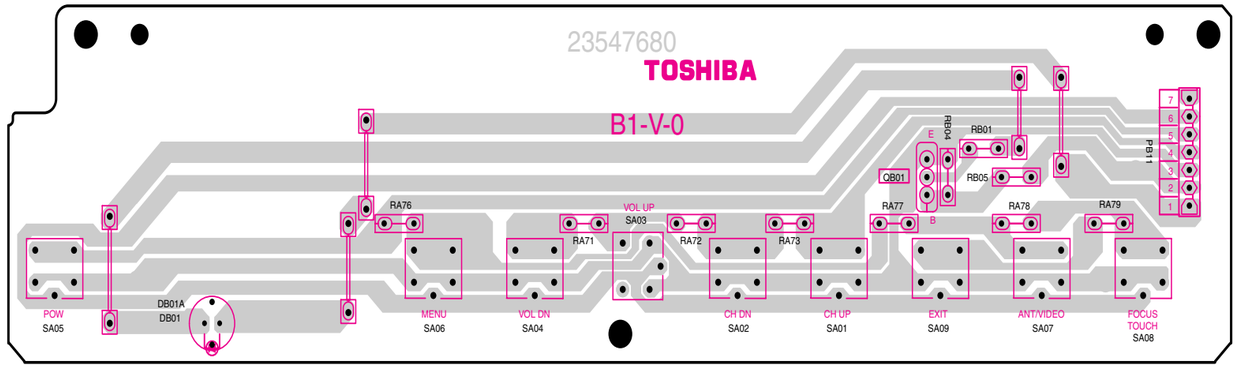
BACK/AV BOARD (46H84:PD1876A1) (E021Z)

BOTTOM (FOIL) SIDE



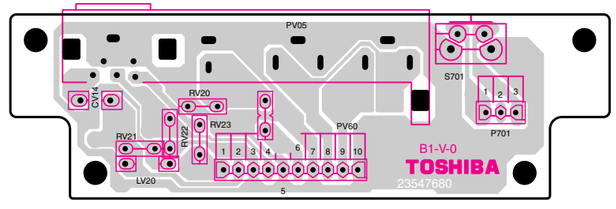
FRONT-CON BOARD (46H84:PD1876A2) (E022Z)

BOTTOM (FOIL) SIDE



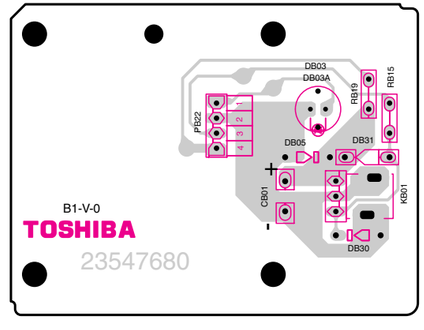
FRONT IN BOARD (46H84:PD1876A3) (E023Z)

BOTTOM (FOIL) SIDE



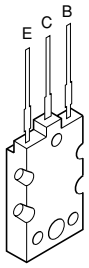
REMOTE BOARD (46H84:PD1876A4) (E024Z)

BOTTOM (FOIL) SIDE

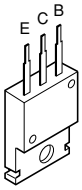


TERMINAL VIEW OF TRANSISTORS

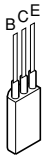
① 2SC5144
2SC5859



② 2SC3852
2SD1763A
2SC1569
2SC4544
2SA1788
2SA1306
2SA1186A



③ 2SC752GTM
2SC2482
2SC2655
2SC4721P



④ 2SC752
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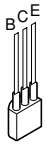
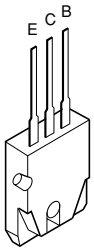
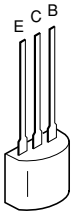
2SA1015
2SC1815
2SC2878
2SC1740S
2SC2120
2SA9335



⑤ 2SA1788



⑥ RN2203
RN2201
RN2004
RN1203
RN1204
RN2204
RN1205
RN1202
RN1201



⑦ 2SD1554
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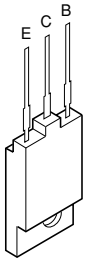
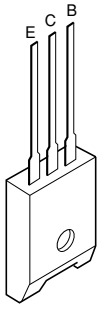
2SD2553
2SC5143



⑧ ON4409



SCHEMATIC DIAGRAM

MODEL : 46H84/51H84/57H84

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON THE MANUAL FOR THIS MODEL.

CAUTION: The international hazard symbols "⚠" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on the MANUAL for this model. Do not degrade the safety of the receiver through improper servicing.

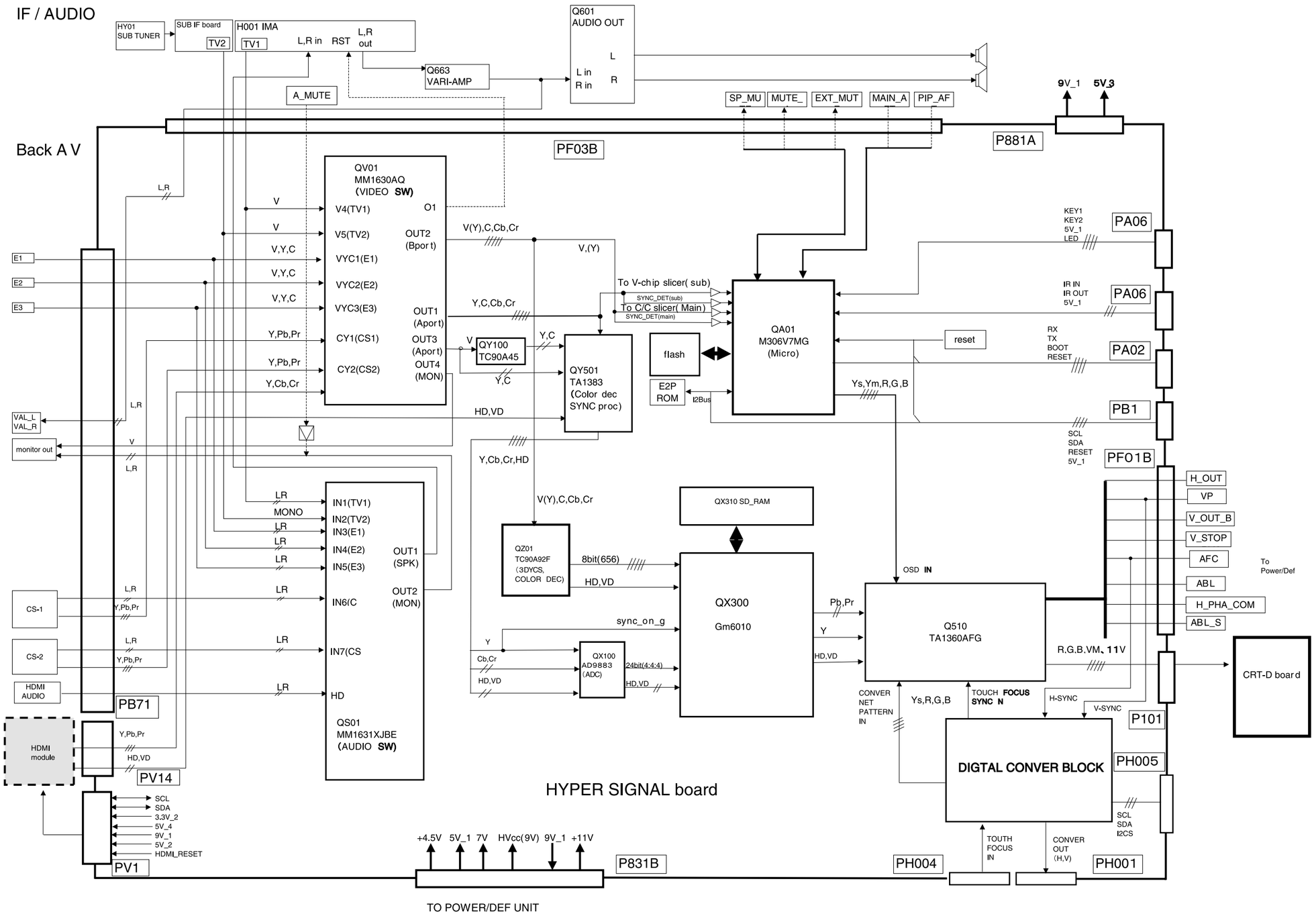
NOTE:

1. RESISTOR Resistance is shown in ohm [K = 1.000, M = 1.000.000]. All resistors are 1/6W and 5% tolerance carbon resistor, unless otherwise noted as the following marks.
   1/2R = Metal or Metal oxide of 1/2 watt
   1/2S = Carbon compsistion of 1/2 watt
   1RF = Fuse resistor of 1 watt
   10W = Cement of 10 watt
   K = ±10% G = ±2% F = ±1%
2. CAPACITOR Unless otherwise noted in schematic, all capacitor values less than 1 are expressed in μF, and the values more than 1 in pF.
   All capacitors are ceramic 50V, unless otherwise noted as the following marks.
   Electolytic capacitor
   Mylar capacitor
3. The parts indicated with "⚠" have special characteristics, and should be replaced with identical parts only.
4. Voltages read with DIGITAL MULTI-METER from point indicated to chassing ground, using a color bar signal with all controls at normal, line voltage at 220 volts.
5. Waveforms are taken receiving color bar signal with enough sensitivity.
6. Voltage reading shown are nominal values and may vary ±20% except H.V.

■ **SCHEMATIC DIAGRAM STRUCTURE:**

- DEF POWER Circuit
  - (1/3) [SHEET - 1/3] 1/60
  - (2/3) [SHEET - 2/3] 2/60
  - (3/3) [SHEET - 3/3] 3/60
- BACK/AV Circuit 4/60
- CONV/IF/AUDIO
  - (1/3) [SHEET - 1/3] 5/60
  - (2/3) [SHEET - 2/3] 6/60
  - (3/3) [SHEET - 3/3] 7/60
- CONVER OUT Circuit 8/60
- FRONT IN/CONT/REMOVE Circuit 9/60
- CRT-D Circuit
  - (1/2) [SHEET - 1/2] 10/60
  - (2/2) [SHEET - 2/2] 11/60
- AV Circuit
  - (1/10) [SHEET - 1/10] 12/60
  - (2/10) [SHEET - 2/10] 13/60
  - (3/10) [SHEET - 3/10] 14/60
  - (4/10) [SHEET - 4/10] 15/60
  - (5/10) [SHEET - 5/10] 16/60
  - (6/10) [SHEET - 6/10] 17/60
  - (7/10) [SHEET - 7/10] 18/60
  - (8/10) [SHEET - 8/10] 19/60
  - (9/10) [SHEET - 9/10] 20/60
  - (10/10) [SHEET - 10/10] 21/60
- HYPER SIGNAL
  - MICOM Circuit
    - (1/10) [SHEET - 1/10] 22/60
    - (2/10) [SHEET - 2/10] 23/60
    - (3/10) [SHEET - 3/10] 24/60
    - (4/10) [SHEET - 4/10] 25/60
    - (5/10) [SHEET - 5/10] 26/60
    - (6/10) [SHEET - 6/10] 27/60
    - (7/10) [SHEET - 7/10] 28/60
    - (8/10) [SHEET - 8/10] 29/60
    - (9/10) [SHEET - 9/10] 30/60
    - (10/10) [SHEET - 10/10] 31/60
  - G-HYPER Circuit
    - (1/3) [SHEET - 1/3] 32/60
    - (2/3) [SHEET - 2/3] 33/60
    - (3/3) [SHEET - 3/3] 34/60
  - AD-CONVERTER Circuit
    - (A) [SHEET - 1/3] 35/60
    - (B) [SHEET - 2/3] 36/60
    - (C) [SHEET - 3/3] 37/60
  - GC-TC90A92A Circuit
    - (1/3) [SHEET - 1/3] 38/60
    - (2/3) [SHEET - 2/3] 39/60
    - (3/3) [SHEET - 3/3] 40/60
  - GC-REG Circuit 41/60
  - GNESIS Circuit
    - (1/3) [SHEET - 1/3] 42/60
    - (2/3) [SHEET - 2/3] 43/60
    - (3/3) [SHEET - 3/3] 44/60
  - SDRAM Circuit 45/60
  - GNESIS OUT Circuit 46/60
  - GNESIS REG Circuit 47/60
  - CPU Circuit 48/60
  - DIGITAL CONVER Circuit
    - (1/8) [SHEET - 1/8] 49/60
    - (2/8) [SHEET - 2/8] 50/60
    - (3/8) [SHEET - 3/8] 51/60
    - (4/8) [SHEET - 4/8] 52/60
    - (5/8) [SHEET - 5/8] 53/60
    - (6/8) [SHEET - 6/8] 54/60
    - (7/8) [SHEET - 7/8] 55/60
    - (8/8) [SHEET - 8/8] 56/60
  - CONVER-REG Circuit
    - (1/4) [SHEET - 1/4] 57/60
    - (2/4) [SHEET - 2/4] 58/60
    - (3/4) [SHEET - 3/4] 59/60
    - (4/4) [SHEET - 4/4] 60/60

CIRCUIT BLOCK DIAGRAM



SPECIFICATIONS

Television System
NTSC standard

Channel Coverage
VHF: 2 through 13
UHF: 14 through 69
Cable TV: Mid band (A-8 through A-1, A through I)
Super band (J through W)
Hyper band (AA through ZZ, AAA, BBB)
Ultra band (65 through 94, 100 through 125)

Power Source
120 V AC, 60 Hz

Power Consumption
185 W (average)

Audio Power
15 W + 15W

Speaker Type
46H84: Two 4-3/4 inches (12 cm) round
51H84: Two 6-5/16 inches (16 cm) round
57H84: Two 6-5/16 inches (16 cm) round

Video/Audio Terminals
S-VIDEO INPUT
Y : 1 V(p-p), 75 ohms, negative sync.
C : 0.286 V(p-p) (burst signal), 75 ohms
VIDEO/AUDIO INPUT
VIDEO: 1 V(p-p), 75 ohms, negative sync.
AUDIO: 150 mV(rms) (30% modulation equivalent
22 k ohms or more)
ColorStream® (component video) INPUT
Y : 1V(p-p), 75 ohms
P_R: 0.7 V(p-p), 75 ohms
P_B: 0.7 V(p-p), 75 ohms
AUDIO: 150 mV(rms), 22 k ohms or more
VIDEO/AUDIO OUTPUT
VIDEO: 1 V(p-p), 75 ohms, negative sync.
AUDIO: 150 mV(rms) (30% modulation equivalent
2.2 k ohms or less)
VARIABLE AUDIO OUTPUT
0–300 mV(rms) (30% modulation equivalent,
2.2 k ohms or less)
HDMI INPUT
HDMI typeA
Suggested scan rates: 1080i, 720p, 480p, 480i

Dimensions
46H84: Width 43-3/8 inches (1,100 mm)
Height 40-1/2 inches (1,026 mm)
Depth 21-7/8 inches (555 mm)
51H84: Width 47-9/16 inches (1,206 mm)
Height 50-1/2 inches (1,280 mm)
Depth 22-1/2 inches (570 mm)
57H84: Width 52-3/4 inches (1,340 mm)
Height 55-3/4 inches (1,415 mm)
Depth 23-7/8 inches (606 mm)

Mass
46H84: 143 lbs (65.0 kg)
51H84: 169 lbs (76.0 kg)
57H84: 204 lbs (92.0 kg)

Supplied Accessories
Remote Control with 2 size “AA” alkaline batteries

Optional TV Stand
46H84: ST4663

*1 E-EDID = Enhanced-Extended Display Identification
*2 Design and specifications are subject to change without notice.

– END –

TOSHIBA CORPORATION
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